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THE

DENTAL REVIEW.

DEVOTED TO THE ADVANCEMENT OF
DENTAL SCIENCE.

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THE

DENTAL REVIEW.

VOL. XIV. CHICAGO, JANUARY 15, 1900. No. 1

ORIGINAL COMMUNICATIONS.

THE APPLICATION OF PORCELAIN TO CROWN AND BRIDGE WORK.*

BY H. J. GOSLEE, D. D. S., CHICAGO.

Great as has been the progress and advancement in the fields of dental science, and especially prosthetic dentistry, in the last decade, perhaps nothing has opened greater channels, greater possibilities, than the modern application of the ceramic or porcelain art.

It has materially enhanced the possibilities for attaining a higher degree of artistic skill, the conception of which separates and draws a well defined line of distinction between the mere artisan and the artist, the ordinary mechanic and the prosthetic dentist, and makes possible the combining of those esthetic and hygienic requirements which add so much to the success, comfort and permanence of crown and bridge work.

The future usefulness and application of this work must redound to the glory and credit of the present generation of practitioners, who were first to conceive of the possibilities, beauties and merits of the results which are within our reach when judiciously and practically applied.

These results, no longer hypothetical, have undoubtedly elevated the profession to a higher conception and appreciation of the artistic, without detracting from or conflicting with the laudable pursuance of scientific work; have created within the most humble practitioners an inspiration toward a higher ideal and a higher degree of perfection in their work; an inspiration to create, not to copy, or follow stereotyped forms; and to look even beyond that educational principle of Rousseau's which he condensed into the maxim "follow nature," for it now becomes possible for art to even improve upon nature in many instances.

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*Read before the St. Louis Dental Society, November 7, 1899.

And yet while freely conceding the manifold beauties and advantages of this class of work, it must be remembered that it, as but few things are in dentistry, can never be universally applied.

The successful application of it is so restricted by conditions of occlusion and absorption that it is never destined to entirely take the place of gold work, and any one whose enthusiasm may lead them to think so should soon disabuse their minds of such a fallacy.

When skillfully executed and judiciously applied, it is the very highest ideal of modern dental prosthesis, and the very acme of success; but if without judgment and due consideration for conditions and influences, it is as surely the reverse.

But, however, for the sake of argument, is not *judgment* required in the insertion of a filling or the adaptation of a denture, and is not he, usually, who has the best judgment and reasoning power, the most successful ?

Some have been so carried away by the waves of enthusiasm as to openly assert that they now make no pretense to do any other kind of work, and that they have not made a gold crown or bridge for years; but in my opinion such a man's practice is either somewhat limited, or, on the other hand, large enough to enable him to refuse or turn away all unfavorable cases. Porcelain possesses every necessary strength, only when enough of it can be used to insure strength, and then it must be well supported by strong, rigid and unyielding metal framework. There is no strength in a simple veneering of friable material, and when this class of work does fail, it is due more by far to faulty construction or injudicious application, when the proper material is used, rather than to any defects in or characteristics of the material itself.

Granting the authenticity of the statement that porcelain work is successful when properly applied and skillfully adapted, it becomes necessary to consider the reasons and causes which are prerequisite in attributing success to it. First, a recognition of the absolute necessity for depending upon the metal construction of the work for the required strength. Second, a conception of the characteristics and relative and comparative strength of the various porcelain "bodies." Third, an appreciation of the marvelously improved facilities now at our disposal for manipulating and fusing these products.

METAL CONSTRUCTION.

In considering this first phase of the question, it is essential that we recognize the fact that the requirements for strength are far greater than is alone possessed by a substance of mineral composition, the given or desired form of which is preserved or sustained by the process of vitrification.

This awakening removed the first great obstacle from the path of success and caused to dawn upon our minds the fact that the individual parts of a crown or bridge must first be assembled in a firm and substantial manner, sufficient within themselves to sustain the influences of the force to which they will be subjected, and, moreover, sufficient within themselves to sustain their relations and to protect and support the porcelain. To accomplish this, means that absolute contact of parts before soldering is necessary, and that this should be done with the minimum amount of solder, that the metal framework should be heavy and rigid enough to overcome the shrinkage of the porcelain in fusing, retain a perfect relation, and support all parts of the porcelain which may be subjected to stress in any direction. Particular emphasis is placed upon contact in soldering, because it insures strength of union and guards against the possible change of form or relation accruing from the contraction of the porcelain, which we must bear in mind is considerable, varying from five to twenty per cent. Too much solder is injurious when pure gold is used, because unfortunately it is seldom fused enough to become thoroughly incorporated with or absorbed by the platinum as it should be, and thus remains in globular form in excess of the requirements, until a sufficient heat has been reached in the process of baking to enable the platinum to absorb it. By becoming alloyed with or absorbed by the platinum, the mass is, of course, reduced, and a vacuum is formed which causes a porosity of the porcelain and diminishes much of the strength of the work.

The advent of platinum solders, recently introduced to the profession by Dr. Ames, overcomes this annoyance, has many advantages, and certainly adds great strength to the work; but it may be interesting to those who have no facilities for fusing platinum solders or for procuring them to know that pure gold can be successfully used to meet every requirement if the precautions of absolute contact of parts, of sustaining their relation by bracing firmly with the beams, and of properly fusing the gold are observed.

Characteristics, relative and comparative strength of "bodies." In the early days of the application of porcelain to crown and bridge work, nothing but the *low* fusing "bodies" were used, with a result to those who did much of it very harrowing to the mind, and most markedly compatible with and conducive to the premature presence of gray hairs, for clinical experience and practical application ultimately produced such a large percentage of failures as to perhaps forever discourage many who were then most enthusiastically inclined.

My own experience during those times and since is such as to warrant me in making the statement that in the whole field of prosthesis there is positively no place whatever for these so-called low fusing bodies. They are at best but a high grade of brittle, friable, colored glass, and do not possess sufficient density of strength to warrant their most conservative use.

Various tests as to the relative strength of these bodies have been made by manufacturers and others interested, some of which show that some of them possess a crushing strength equal nearly to the high fusing body; but I take it that this crushing strength in no way resembles the stress of mastication, but simply shows a molecular density which does not necessarily denote strength should lateral force be applied, such as is produced by mastication. A very large clinical experience has proven this conclusively to me, and yet while I maintain that the metal construction of our work must possess the strength within itself sufficient to relieve the porcelain of such a requirement, I also argue that it is manifestly desirable and, indeed, necessary to secure the very highest combined strength of the two.

We can only hope to find this superior strength in the high fusing bodies, or those which contain a greater proportion of silica and feldspar and less kaolin and borax, and which fuse at or above the melting point of gold; and while it is not now possible to procure such bodies in the various assortment of colors, neither is it necessary, for the work should be so constructed as to enable us to depend entirely upon the selection and grinding of the facings for color, and not upon the porcelain.

I am of the firm opinion that any "body" fusing lower than 2,000° F. should not be used for this work, because it cannot fuse lower and possess the necessary strength; hence the practice adopted by some of using the high body for the first bake and finishing with the low is detrimental, because it materially impairs the strength of the finished product.

If we grant the superior strength of the one, there seems to be absolutely no reason for using anything else, for, as previously mentioned, we can depend upon the facings for color, and if the body does not exactly match when fused, the variation is practically immaterial, as it does not show. Some slight variation is possible, and can be governed to some extent by the degree of fusing to which the body is subjected, for the higher the heat between the radius of fusing and overfusing, the lighter the color.

Of great and material importance, also, is the selection of facings, for all of the makes of mineral teeth are not adapted to the use of the high fusing bodies, some manifesting a tendency to bleach out to a white opaqueness, while others retain their color probably, but come out of the furnace with a surface bespecked with little black pits, due most likely to the fusing of some of the incorporate ingredients.

These faults and defects, however, can be overcome by knowing the characteristics of the various makes of facings and bodies, which comes with very little experience; take the English teeth, for instance, and while their fusing point and strength is known to be high, it is impossible to use anything but their own or the lower fusing bodies in combination with them, for the American high fusing bodies, while fusing lower than the English teeth themselves, will entirely reduce the color to an opaque whiteness entirely devoid of translucency. This condition will no doubt soon be overcome by each of the manufacturers making a body especially intended for their own teeth, which is the result of demand and already the case with many of them.

FACILITIES FOR FUSING.

But a brief retrospect will enable us to appreciate the marvelous improvements made in the facilities for doing this work in the last few years, and to these improvements more than to anything else is due the success attending the use of porcelain. Since the advent of the electric furnace, the coke, oil, gasoline and gas apparatus have been almost entirely relegated to the archives, and the noise and dirt incident to their use no longer becomes a menace to the busy practitioner.

Most any one, now, whether located in city, town or hamlet, can do this work without loss of time and without objectionable features. Some, it is true, who may be fortunate or unfortunate enough to be located in small towns, where they have only the night current, may be compelled to do their baking after the busy hours of the day are over, while others in still smaller towns, where there is no supply of current at all, may still have to depend upon gasoline, which is, to my mind, the most successful means next to electricity.

The question of the best electrical furnace is much a question of opinion and individual preference; all of them are successful in the uses for which they are intended in the proper hands. What we need mostly now is a furnace for the alternating current, because since "to supply" such a current is less expensive, and is used more extensively for the purpose of illumination, it is more easy to procure; and I believe the ideal furnace, whether for the direct or alternating current, will contain a porcelain muffle, because there will be less danger of burning out, they will be easier to repair, and the heat will be generated more uniformly.

PRACTICAL APPLICATION.

In arriving at a consideration of the practical application of porcelain work, let me begin by emphasizing the fact that there are certain fixed principles and well defined details which must be zealously and scrupulously followed to insure successful results; and, while it is acknowledged that the tissues of the mouth take more kindly to porcelain than to any other material, it must not be construed that because of this advantage the detail of construction may be either indifferently or indiscriminately pursued.

ROOT PREPARATION.

Much of the success of this work depends largely upon proper root preparation, and while the requirements are similar to those for any dowel crown with a band, it is necessary to cut them shorter than is usually the custom, because to secure the highest degree of esthetic and artistic effect nothing but the porcelain should show when the crown is in place in the mouth.

This, however, should not be done until the periphery has been prepared by entirely denuding it of the overhanging edges of enamel, etc., and the band has been fitted. The root is purposely left about one-sixteenth of an inch longer than the gum, until the above has been accomplished, the measurement taken and the band fitted, which greatly facilitates each prescribed step, after which it should then be cut down even with the gum line on all surfaces, and then with a root facer it should be sacrificed enough to allow for the thickness of the floor to the cap, so that the latter when in position is just sufficiently imbedded to be practically invisible. By rounding the labial or buccal gingival edge of the cap, the edge of the facing may be ground to overlap it and come in contact with the gum, both necessary features; the overlapping of the facing on the cap to retain the thin surface of porcelain which must be placed here to make a smooth, continuous joint, and the bringing of the facing into contact with the gum so that it alone may show. The lingual surface being so cut away enables the carrying of the porcelain up to the gum line, which not only adds to the artistic effect, but allows more room for porcelain, which also increases strength and facilitates contouring.

GUM REPRODUCTION.

Absolutely no objection can be made to sacrificing the root, as described, in the great majority of cases, but in those instances which we sometimes find, where the gum and perhaps the alveolus have receded or absorbed beyond the normal line, the root should only be cut away to a point corresponding with the gingivæ of the adjacent teeth, which will cause the artificial substitute, so far as the facing is concerned, to be of the same length as the natural crowns approximating it, and then, should it be desirable to extend the crown up to cover the exposed surface of the root, the band should be so extended and then covered with gum enamel, as in Fig. 1, bringing the possibilities and beauties of the work vividly before us.

This same artistic effect is also applicable to ordinary rubber or plate teeth for partial dentures, where there is considerable absorption. The tooth of proper size and length is selected and a neck of gum enamel baked on, after which it is ground to fit, and subsequently attached to the plate, which renders the tooth the same length as the approximating natural ones—a highly essential feature, restores the lost gum tissue, and is far easier to fit and adapt than an ordinary gum section tooth would be. Fig. 2.

BANDS.

The fitting of the band is, of course, very important, but is rendered more or less easy by leaving the root as described until this step has been accomplished, as it serves to conform the band to the proper shape, and guides it into place. In pressing it into position on the root, it should be so trimmed as to meet the gum line evenly at all sides before passing under it and should be as narrow as possible to meet the requirements; but being narrow and in order that it may possess strength, no thinner than twenty-eight gauge pure platinum should be used. If pure gold be used for solder, a lap joint should always be made, which precludes the possibility of its opening under the influence of the expansion in the subsequent baking. Where platinum solder is used, the joints may be *butted*.

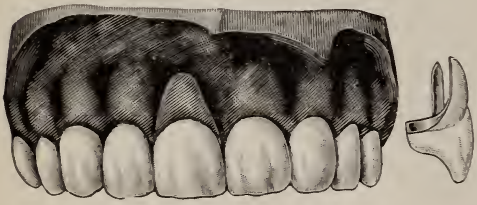

FIG. 1.

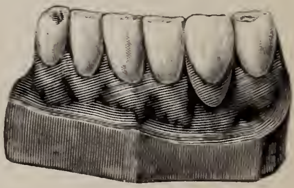

FIG. 2.

CAP.

The metal used for floor to the band, which forms the cap, should be of thirty gauge platino-iridium, unless an irregular edge to the band makes it difficult to be adapted when pure platinum can be used; the former, however, is to be preferred in order that the cap may possess every available strength sufficient to permanently retain its shape.

POSTS.

The post should be of platino-iridium of a size proportionate with the root, sixteen gauge, B. & S., for centrals, cuspids and molars, and eighteen gauge for laterals, bicuspids and all of the lower teeth; should extend into the canal a distance equal to the length of the crown from cervix to incisal or occlusal edge; should fit at least two walls of the canal closely, and should be placed far enough lingually so that the projecting end through the cap may not interfere with the facing.

FACINGS.

The facings should be carefully selected and ground to a proper adaptation, and in soldering to the cap in the six anterior teeth the pins should come in contact with the post at a point as close to the floor as possible, in order that they may offer no interference with the contouring of the lingual surface of the porcelain or to the occlusion. Fig. 3.

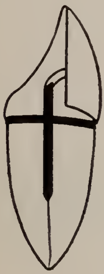

FIG. 3.
Drawing of central incisor crown.

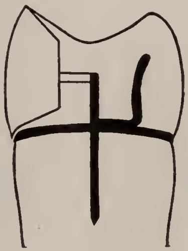

FIG. 4.
Drawing of bicuspid crown with one post.

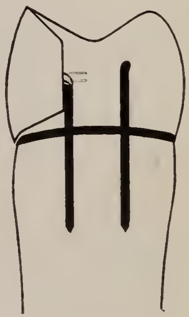

FIG. 5.
Drawing of bicuspid crown with two posts.

BICUSPIDS.

While the ten anterior teeth are the ideal indications for the porcelain crown in all average cases, the bicuspids are particularly so, because of the difficulty in constructing any other kind of crown for these teeth that would not entail considerable effort and show more or less gold. If there was no other place in crown and bridge work for the application of porcelain than in these teeth alone, it would still serve a gratifying sphere of usefulness.

In their construction the same general details should be followed with a consideration of an important point which has previously been neglected, and which neglect has been the cause, in my own experience, of numerous failures. This distinctive feature is in the support of the mass of porcelain which forms the lingual cusp, the absolute necessity for which can be readily seen, and means simply the addition to the metal construction of an upright projecting spur in the center of the lingual surface, which can be placed in position and attached at the time of soldering the facing, or may be an extension of the lingual post, if two posts be used. Figs. 4 and 5.

The advantage and necessity for this is at once apparent, and if followed will prevent many failures and insure a crown possessing every possible and required strength.

Comparison of relative strength of attachment of facing. A comparison of the relative strength against breakage of a properly constructed porcelain crown and the porcelain face metal back crown, in so far as the retention of the facing is concerned, must be to the credit of the former, because in the latter the facing is only retained to the metal by means of its attachment pins, while in the porcelain crown there is a fusion between the porcelain and the entire surface of the facing, together with the attachment of the pins; in all, such a difference that comparison is indeed odious, and it is not at all strange to record that these facings seldom break away.

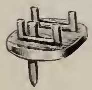

FIG. 6.

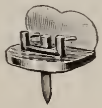

FIG. 7.

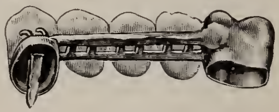

FIG. 8.

MOLAR CROWNS.

For molar crowns one is enabled to not only obtain successful results, but be governed by conditions in a highly gratifying and practical manner; for instance, if the occlusion is too close to use a facing, a cap may be made as for the anterior teeth, and the entire crown may be built and carved in porcelain, which if securely anchored to and supported by the metal construction, is permanent, practical and artistic (Fig. 6); while if there is room for a facing, the same can be used to advantage where color is essential. Fig. 7.

The only objection to such a crown is in the necessity for sacrificing so much of the root, which, in a measure, may sometimes increase the liabilities of the subsequent fracturing at the bifurcation, because of the weakened condition of the remaining tooth structure at this point, which, however, to my mind should not prevent the practicability of the application, when the indications and conditions seem favorable, and the adaptation and execution are properly performed.

The all platinum crown for molars is sometimes indicated in bridge cases where it is desirable to leave the root as long as possible, that increased strength in the pier teeth may be secured. These may be made in the ordinary manner, excepting that two cusps are swaged in the same dies, one of which is trimmed smaller than the other, so that it will fit nicely inside of the larger one; when the two are united with solder, a good heavy thick cusp is the result, which may be still re-enforced in baking by fusing porcelain inside of them to an extent which will be admissible by the length of the root.

BRIDGE WORK.

Since the advent of bridge work, perhaps no other one branch of dentistry has progressed so rapidly in the face of such adverse circumstances and such miserable and contemptible abuse, and yet withal, the sphere of usefulness which must be accorded it must forever continue so long as people lose their teeth and dentists exist.

The greatest drawback and menace to be contended with has been the pernicious practice of professional charlatans and mountebanks of applying bridges to any and every conceivable place, and in any and every conceivable manner, irrespective of indications and conditions—save, perhaps, their own financial one. Fortunately, however, the application of porcelain work to a great extent precludes such a possibility, and in consequence the day of long, filthy spans, carried by glittering gold teeth and miserably adapted bands, is on the wane; and the people, educated by the better class of dentists, are no longer consenting to the insertion of such monuments of cheap dentistry.

In the application of porcelain bridge work, the indications for its use must be governed entirely by the conditions existent, but where it can be used reposes the same general advantages referred to in relation to individual crown work. If I were asked the indications for the application of a porcelain bridge, I should answer briefly—in those cases where the absorption and occlusion afford plenty of room for a strong metal framework well covered with porcelain, with good strong abutments, where no one tooth will be expected to do more than the work of two.

The requirements are numerous and important, and the details must be consistently and faithfully carried out, even more so than in single crowns or gold bridge work.

The assemblage of the individual parts must be made with a view of securing every particle of strength possible in their union; with an appreciation of the necessity for supporting the porcelain at all points against the stress of the force; and with a realization and knowledge that the metal construction must be so securely put together as to remain in the same relative position, and overcome the tendency for and liability of change of form from the influences of the shrinkage of the porcelain during the process of fusing.

Every part must be braced, every joint lapped when possible, which fitting is best done after the case has been invested. At least, two crossbeams of platino-iridium should extend from pier to pier, wherever possible; the ends of one of which should be overlapped on each cap or crown, care being exercised, however, to place them up close to the facings, so that they may at no place interfere with the subsequent contouring of the porcelain, and that the pins of each facing may be brought into direct contact. The square wire from sixteen to eighteen gauge is easiest to adapt and adjust, because the flat sides aid its retention in position while soldering, and afford better contact with less solder. All sharp angles, however, should be nicely *rounded* before the porcelain is applied, because it cracks and draws away from such edges in fusing and would fracture easier when subjected to stress.

The bracing of the parts and the overlapping of the ends of crossbeams are illustrated in the pieces of work which I herewith present to you for inspection. You will also observe the lingual supports for the protection of the porcelain, which I deem highly essential. Exhibit " A " shows a bridge of five teeth in the metal construction, and after baking, where a cap is made for the cuspid and an all platinum crown for the molar pier, and where the ordinary saddleback tooth has been used to advantage. Fig. 8.

Exhibit " B " shows the same bridge, with the exception that facings are used instead of the saddlebacks and the lingual cusps are built and carved of porcelain. Fig. 9.

It will be noted in these cases that there is no saddle to rest upon the gum, while in Exhibit " C " the saddle suggested by Dr. Nyman is used. This, to my mind, is the ideal saddle for the upper mouth, because it leaves clean interproximal spaces, renders support under the tooth where support is necessary, and affords opportunity for lingual contour. Fig. 10.

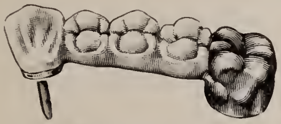

FIG. 8A.

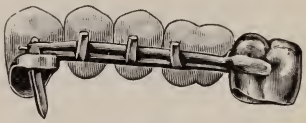

FIG. 9.

Exhibit " D " shows the original construction of a bridge for those lower cases where there is a considerable absorption. The saddle here is quite necessary to relieve the abutments of some strain, and is constructed on a half round or D wire of platino-iridium, the convex side of which rests upon the tissues, affording a self-cleansing support. Fig. 11.

SADDLES.

There is perhaps no portion of this work of more importance than a consideration of the usefulness, advantages and disadvantages of saddles, and the indications and contraindications for their use. I am of the opinion that the application of a saddle is a matter of judgment altogether, and that while in some cases they are indispensable, they are often unnecessary and entirely uncalled for. They are, indeed, practically indispensable, in extension bridges, where one or sometimes two teeth may be carried posterior or anterior to the abutment, and in those cases

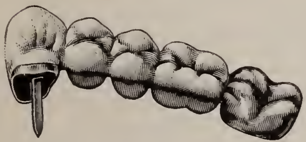

FIG. 9A.

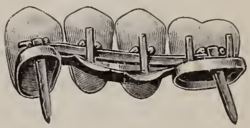

FIG. 10.

where some support in between the pier teeth is necessary to relieve them of some strain. Generally speaking, the wide continuous concaved saddle should be most vigorously condemned.

PREPARATION OF "BODY."

The ordinary continuous gum "body," because of its superior quality and strength, is the only material I regard as possessing the necessary qualifications for general use in this work, but before using it, it is necessary to put it in the mortar and pulverize it much finer, as it cannot be nicely manipulated and carved until this has been done. When reduced to a finer consistency it works, carves and fuses most beautifully, and no doubt it will ultimately be prepared for us in this shape, and designated as *crown* and *bridge* "body," but so far the manufacturers decline to so furnish it.

APPLYING AND CARVING THE "BODY."

First of all, absolute cleanliness of the work and of all of the conditions and environments surrounding the place of its execution is highly necessary. The body should be mixed on a clean glass or porcelain slab, with pure, clean water, to a consistency as thick as it can be nicely manipulated. With the work securely held in a pin vise, the body should be applied carefully and so thoroughly condensed as to carry it into the most minute crevice and bring the moisture to the surface. This moisture should be absorbed as the building up progresses with a clean piece of linen or bibulous paper, until the general form with considerable surplus has been obtained. The moisture should be then gradually evaporated until the mass cuts like putty, which, if need be, can be hastened somewhat by slowly passing over a Bunsen flame. The mass is then carved to the desired form and given the proper shape and contour, after which it is ready for the first bake. To obtain accurate results in occlusion, the caps,

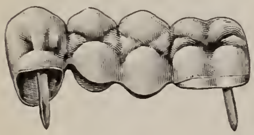
FIG. 10A.

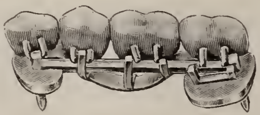
FIG. 11.

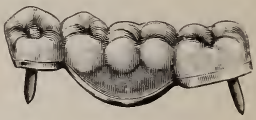
FIG. 11A.

while in the impression, before running the model, should be covered with a thin film of wax so that when the model is secured they can be easily detached from it and their relation preserved. After the carving has been completed, the piece may be placed in position on the model and additions or sacrifices made until a favorable occlusion presents. Two bakes are *always* necessary, owing to the shrinkage, but the outline and general form should be obtained for the first, which is only biscuited or partially vitrified, and the general contour is easily made for the second bake, with an allowance for shrinkage, which is carried to the point of perfect vitrification.

Prior to building up and carving, the work should be fitted on a fire clay tray, support or truss, which will hold it securely and firmly in position, and sustain a perpendicular position, as this is very necessary, and can be more easily done before the porcelain is added than afterward, when it should be handled but little.

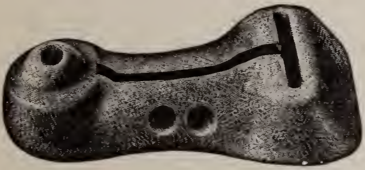

FIG. 12.
Support for baking bridge.

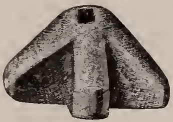

FIG. 13.
Support for baking crown with one post.

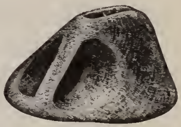

FIG. 14.
Support for baking crown with two posts.

These trays or trusses are made by molding pulverized fire-clay and a small portion of plaster to the desired form and then baking them until hard, when they will then withstand unlimited use. Figs. 12, 13 and 14 well illustrate three designs for universal use, recently made for me and now placed upon the market by Dr. R. C. Brophy, of Chicago.

In instances where it may not be possible to bake as soon as the work has been carved, the form can be preserved indefinitely by placing it upon a well moistened cloth, which avoids the tendency of the porcelain to crumble away when too dry.

The addition of a few drops of liquid gum tragacanth to the water for mixing, as practiced by some, is entirely unnecessary, as it is only intended to aid in holding the mass together, which is observed by the manufacturers in the incorporation of a small per cent of starch in the porcelain, and too much gum tragacanth is decidedly objectionable because it acts as a flux to the body in fusing, which diminishes the preservation of fine lines and sharp angles.

BAKING.

The work should be heated up very slowly to avoid the expansion incident to a too rapid evaporation of the moisture, and watched carefully from the start until finished. There are many tests for ascertaining the exact time of complete vitrification, but none are absolutely accurate, and fusing porcelain is much a matter of experience.

The fusing point of a globule of pure gold placed along side of the work denotes the average time necessary for a good first baking very accurately in any furnace, but from then up to the desired vitrification for the finished work the eye must be trained to distinguish, as different furnaces and different currents vary from time to time. It is easy to train the eye to distinguish this point without reference to time or tests if one will experiment a little and manifest no hesitancy in opening the furnace and looking at the work as the point of fusion is reached, for there is no danger attending this procedure if no draft of air is in the room.

The failures which accrue from the baking of porcelain, while many times due to the presence of dirt, borax or foreign substance on the work, to too much pure gold, and to too rapid heating, are due more to *overfusing* than to anything else, as this completely destroys the color, beauty and strength of the work.

When the baking has been successfully accomplished, allow the cooling to take place slowly to avoid too rapid contraction, and then nicely finish the exposed surfaces of the platinum.

MOUNTING.

The subject of mounting is just now attracting considerable attention, because of the agitation of gutta-percha as a retaining medium, in preference to the process of cementation.

Were it possible for every one to successfully manipulate gutta-percha, the advantages of ease of removal, insolubility, and the cushionlike effect afforded, would render it practically the ideal method; but unfortunately it is a difficult matter to successfully manipulate it in extensive cases, and even requires considerable time and much painstaking effort in single crowns.

The procedure is to cut the ordinary base plate gutta-percha into thin strips or ribbons, heat thoroughly, pack into each crown separately and press to place.

If an excess has been used, so that the proper adaptation is not possible, remove and trim surplus away gradually with a hot instrument. Heat and again press to place until just enough remains to fill every particle of space between crown and root; or if not enough has been used in the first place, make gradual additions until it becomes well molded and is sufficient to fill space nicely. Then, after drying root thoroughly, moisten with oil of cajuput, heat gutta-percha again and press to place.

A small blowpipe, with a minute nozzle and perforation has been suggested by Dr. Taggart, of Chicago, who is a staunch advocate of gutta-percha, for heating it when in the crown, which greatly facilitates the work; but it can be seen that to so manipulate a material of such resistance and poor affinity for heat is somewhat arduous and consumes considerable time, although doubtless affording a permanent means of retention.

Because of the time consumed, and of the comparative advantages, I usually give preference to cement, but always observe the precaution of coating the interior of crown and post with a thin film of chloro-percha or gum shellac, either of which facilitates removal in case of necessity.

When cement is used in mounting bridge cases with saddles, however, great care is necessary to avoid the penetration of the cement in between saddle and gum, as the irritating influence of same would cause much trouble. This can be overcome by using cement mixed to a fairly thick consistency, carrying it to place on the roots, then quickly removing and cleaning surface of saddle before readjusting to position.

GOLD PLATING.

A desire to be scrupulously esthetic on the part of some porcelain workers has influenced them to subject the finished crown or bridge to the gold plating process before mounting, which practice I think so entirely unnecessary as to be condemned, because in the application of porcelain we are endeavoring to avoid the conspicuous appearance of gold, and should educate our patients into an appreciation of the value of platinum and its very presentable appearance when nicely finished and highly polished. Moreover, the heaviest plating only lasts in the mouth from one to three years, and when it oxidizes or wears off, the result is certainly more objectionable than the appearance of the original metal when highly polished, which if showing at all is only on the posterior teeth.

When the work is carefully executed, nicely finished and well mounted, if "true art is to conceal art," certainly the highest ideal in dental prosthesis has been reached.

THE NEED OF DENTISTS IN THE PUBLIC SCHOOLS.*

BY CHARLES E. BENTLEY, D. D. S., CHICAGO, ILL.

Any dentist who is in touch with the trend of progress in his profession must appreciate the honor of an invitation to speak before this representative society of the State of Illinois. He must also highly estimate the value of this opportunity to meet for conference and for exchange of ideas the men that this occasion will bring together. These closing days of the century show a condition of almost startling progress in many lines, and in none more than in the profession of dentistry. No more than, say forty years ago, the fellowship, the cordial exchange of ideas and methods which mark such an event as this did not exist. In those early days each man's workroom was barred against his brothers. Methods of practice were jealously guarded and small prejudices and selfishness arrested the development of a profession whose growth held unlimited possibilities. The organization of dental societies was the key to this locked door of individual isolation, and, to my mind, has revolutionized the condition of the profession at large. It is because I so highly regard the influence of this body, Mr. President, that I wish first to express my appreciation of the honor conferred on me by an invitation to speak before it, and then to lay before you, with what little degree of eloquence is mine, a subject which not only lies near my heart but that of many of our colleagues in Chicago, and for which I wish to enlist your active interest.

Bacon has said, "Knowledge is useful in proportion as it serves the needs of mankind." These words are especially applicable to the professions. In proportion as a profession widens its usefulness, its general application, in just such proportion is that profession worthy of the esteem of mankind. The knowledge necessary to a fully equipped professional man in enhanced when that knowledge, aside from its professional wants, is applied to civic usefulness and civic needs. In short, a profession that contributes to the public weal, to humanity, is held more in the public estimation because of such contribution. The profession of medicine has done much in this line that rightly entitles it to the high place it holds in the public regard. The professions of the law and the clergy each manifest a keen interest in the government of civic affairs and contribute their share to the well being of society.

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*Read before the Northern Illinois Dental Society.

These professions with histories replete with many achievements, with a literature illumined by centuries of research, with a zealous following of devotees, who are keenly alive to the legacies of the past and eager for what the future may reveal, have won their places in the public's favor as much for their interest in the public weal as for their technical achievements.

We pity the soul that is so dwarfed and self-centered that it has no time nor thought to give to its fellow man. The loss is to the former, not to the latter. As it is with men, so it is with classes of men or nations. A class of men or a nation has reached a high degree of organization and usefulness when it can throw off from itself, like planets from a central sun, many independent forms of organization that are created for the benefit of society. This condition has been reached by many nations and a few professions. What are we doing as a profession to meet the high estimate of our calling along these lines? What organized movements, having for their object the benefit of the civic health, civic sanitation, civic hygiene, civic enlightenment, have emanated from us as a profession ? If the test for a profession's widespread usefulness is as above indicated, then how does our profession measure up to the conception? Are we not neglecting and have we not ignored many opportunities, the fulfillment of which would have strengthened our claims upon the public esteem? In proportion as we engraft our professional selves upon the civic life work from disinterested motives, and contribute to the public weal, in just such proportion will we rise in the estimation of the people in professional worth.

The natural question will follow, what then, can we do, as a class, to enlarge our usefulness and enhance the good name of our profession? This brings us face to face with our subject matter.

As is well known by this body of men, without any rehearsal from me, many stigmata that we attempt to correct or assuage in adult life might have been avoided had the patient known a remedy or, better, had he or she fallen into the hands of a competent adviser before the permanent sequelæ had fixed themselves. This is only made possible by our opportunity to see these conditions in their incipiency. Dentists do not have this opportunity with the vast majority of children, and with the present rate of progress in this direction, it will be many moons before such will obtain.

What can we do to hasten this condition? What machinery can we set in motion that will at once obviate the conditions referred to above and enhance our professional worth in the public mind? It seems to me that our usefulness would be greatly enlarged were it possible for competent dentists, recognized by school authorities, to be delegated to examine the mouths of children in the public schools and teach them regarding the hygiene of the oral cavity, and instruct them how to avoid the many pitfalls that are familiar to us all, which are often only the price of ignorance, or worse, willful neglect. Already this movement has received the serious thought of men in other countries than ours. In Berlin, Wurtzburg, Cologne and Strasburg, Germany; in Salford and Leicester, England; Brussells and Antwerp, Belgium; Bordeaux, France; Tokio, Japan; Copenhagen, Denmark, and Canada, various systems obtain, and the results are more than were looked for by their most sanguine promoters. In Toronto, Canada, no child can enter the public schools who does not present a certificate to the effect that its teeth have been examined by a dentist. California and St. Louis are wide awake on this subject, and are slowly paving the way for its consummation. Chicago has gone at the work in an organized way. Under the patronage of the Odontographic Society it has sent circular letters to the boards of education in all civilized countries in cities of 100,000 and over, asking them concerning such a movement, and gathering data upon the subject. The classified answers will appear short y under the direction of the Odontographic Society of Chicago. It is sufficient to say here, however, that the letter has stimulated the movement in nearly all places to which it has been sent, and I should not be surprised, when all the facts become known, but that a general awakening as to its importance will be the result, both with school authorities and the dental profession.

What are the possibilities of such a plan in full operation? Under the proper regulations such a plan would be of inestimable worth to the children and would reflect great credit upon the dignity and usefulness of the profession. The impression upon the child's mind, while yet in its plastic state, of the importance of the care of the teeth would be lasting. Teaching the child the importance of the first molar would be of incalulable worth. The advice to the subjects examined regarding the correction of irregularities, thereby in after life preventing malformations and deformities of the face, the teaching of the best methods regarding oral hygiene, and the multitude of useful facts pertaining thereto, you will agree with me, is valuable. The early discovery of adenoid growths in the posterior nares, a condition having a most baneful influence upon the mentality of the child, would be of positive advantage.

Again, the profession of dentistry would become one of the civic functions. It would have received some official recognition of its status of professional service as a factor of usefulness in maintaining the civic health. The data collected from these examinations would be of untold wealth to investigators. The profession would be brought closer to the community by reason of its connection with the school system. It is a startling fact, but none the less true, that but twenty per cent of the population in any community in this country receive any dental service.

It possibly might result in a dentist's employment by the school authorities to teach that particular subject, rather than having it taught as now, more .or less indifferently, by teachers of physiology.

These are some of its possibilities and benefits. This is a statement of the proposition simply. The details of such a plan would have to be elaborated by individuals most interested and according to the conditions where it would be introduced. It is sufficient for me to say here that considerable caution would, of necessity, have to be exercised in the selection of such men, and, from the point of view I have now, think such appointment should come through the recommendation of dental societies. The abuse of any of its privileges could be dealt with as the abuse of any privilege over which the school authorities have control. I can see nothing but good to come from this propaganda. It is destined to be of service to humanity, thereby dignifying and enlarging our usefulness, and of inestimable service to the profession in a scientific way.

With such conclusions, I am therefore justified in making an appeal to you as an organization to look at this question with serious eyes and think of it with your best thoughts, and organize that you may do some effective work upon this line of thought. Chicago is very near to you and in the midst of this work. She doubtless would gladly extend to you the right hand of fellowship and solicit your coöperation in this crusade.

PREDISPOSING CAUSES OF DENTAL CARIES.*

By J. J. REED, D. D. S., ROCKFORD, ILL.

This subject needs no introduction. It is as old as dentistry. The dentist of one hundred years ago was quite likely often puzzled, as we are to-day, by the patient asking the question, "What causes the teeth to decay so much?" The subject has been given recent prominence by an article read before the National Dental Association by Prof. G. V. Black, in which he says: "It is now time that these questions be given serious consideration."

As caries is the greatest enemy of the teeth, so its etiology is the question that towers above any other in dentistry, for unless we know the cause, how can we work intelligently to prevent it? He says: "The effect of these studies is to divert the search for the predisposing factors from the teeth themselves to the surroundings of the teeth or the oral fluids and the bodily conditions which give character to the secretions." In other words, the predisposing cause is not in the teeth themselves, but is either in the environments or in a constitutional influence on the saliva. The question arises, is it a local or a constitutional cause? Let us consider the local causes.

Caries seems to be caused mostly by the cooking of civilization. Animals' teeth seldom or never decay, and the teeth of primitive man were likely quite sound. The teeth of the older Hawaiians were quite free from caries. Talbot noticed in examining ancient skulls that caries was mostly confined to the occlusal cavities. Some one has said that the teeth of the Esquimaux seldom decay. These people lived nearer to nature and ate coarser food, which favored general health and exercised and cleaned the teeth.

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*Read before the Northern Illinois Dental Society.

Hydrated or cooked starch, which comprises about fifty per cent of our food, is a prominent factor in causing dental caries. It has a great tendency to lodge. It is sticky and pasty in its nature and so smooth to the feeling of the tongue that it is not likely to be noticed. The ptyalin of the saliva changes the starch to glucose, which is a perfect food for the bacteria of caries. Dalton says that "Ptyalin has no action on raw starch," and its granular nature is unfavorable to its lodgment. Sugar, or its solutions, are so soluble in the saliva that their stay in the mouth is very transient and not liable to do much injury to the teeth unless taken frequently. The lodgments of all albuminous foods, such as meats, etc., putrefy and form alkalies, which have no effect on the enamel.

Microörganisms do not colonize and stay unless the environment is favorable and a repeated lodgment of food is the first essential. Then to remain they attach themselves to the teeth by a gelatine coating. This may be an adaptation to environment that we find everywhere in organized life, and if any sheltered place does not decay it is because either the food does not lodge or the mastication is so vigorous as to break up the colony, or microbic plaque. It seems to me that it must take some time for the plaque to form, and if it was broken up by mastication even once in every twenty-four hours, that it would not prosper. So the microörganisms would flourish best in a place entirely unmolested.

There are three general places for lodgment of food, and hence we have three general classes of cavities, viz., the occlusal cavities, the proximal and the cervical.

The occlusal cavities are caused by pits and fissures or defects in the teeth. These are usually the first class to decay, and are easily filled and saved.

The proximal cavities are caused by a recession of the gum septum, leaving a V shaped space for food lodgments. A healthy gum septum should fill the space, as nature intended, to the exclusion of food, and consequent prevention of proximal cavities.

The cervical cavities are caused by the thickened edges of the gum margin on the labial or buccal side, which favors the lodgment of food. This class of cavities are the least excusable of any as this surface is easily accessible to the brush.

Cavities often form in groups and in a regular order. The first cavities to appear are the occlusal cavities in the crowns of the molars and bicuspids. Next the proximal cavities in the upper incisors. Next the proximal cavities in the molars and bicuspids, next groups of cervical cavities and about the last teeth to decay are the lower incisors. How can we account for this ?

The occlusal cavities are due to defects, that are almost impossible to keep clean and being most favorable form first. The knife and fork do the work of the incisors which allows the gum septum to recede, and proximal cavities to form. Being compelled to use the bicuspids and molars more, delays this class of cavities here. When cervical cavities form the conditions must be very favorable. It needs a thickened gum margin to catch food lodgments, and these only come by long neglect. The lower incisors are placed between an active tongue and lip, and here is where the saliva gravitates and constantly bathes them.

The breaking up of the plaques by mastication is probably the greatest factor in preventing caries, and here I will take the liberty to quote from an essay read by myself at a meeting of our Rockford society last April.

" The mouth is the organ of mastication and speech. It has two sides, viz., a right and a left, and the teeth of either side may be used independently of the other; so with the salivary glands, especially the parotid. Some habitually masticate their food well; others hurriedly bolt their food. The former usually have well articulated teeth, more or less worn, and in cases of much wear we generally find a healthy mouth and few cavities. The amount of mastication and insalivation required depends on the hardness and dryness of the food. Our foods are so prepared these times that they are nearly ready for deglutition, and the process of mastication is comparatively little needed or used. Masticating hard, dry food is nature's way of exercising and cleansing the teeth and gums. This is what makes firm, pink gums, and clean, pearly teeth.

"The value of the habit of thorough mastication in saving the teeth is nicely illustrated by those who chew gum. Among many cases of this kind that come to mind, one was of a young lady who was an enthusiastic gum chewer, and who had the most perfect set of teeth I think I ever saw. Dr. W. Storer Howe, in an article on local exercise of the teeth, mentioned the case of a man who had chewed gum all his life, and he had a perfect set of teeth.

"As before stated, about fifty per cent of our food is cooked starch, which is a smooth, sticky paste, which requires scarcely any mastication, and allows the gums to lose their proper tone, which, instead of perfectly filling the interproximal space and excluding food debris, its edges become lax and rounded, leaving a V shaped space between the teeth, where food particles collect and cavities form. If cavities form we may have all the attendant evils of dental caries, from a sensitive cavity to a hyperemia and inflammation of the pulp, alveolar abscess, loss of the tooth and a broken row of teeth."

"Also if dental services are not well rendered we may have a tooth sensitive to thermal changes, or a lame or sore tooth. The pain or inconvenience of using a sensitive, a sore or absent tooth instinctively causes us to masticate in other localities. This becomes habitual and may be termed a *habit of the mouth*. These neglected localities become foul with food debris, salivary calculus, etc., favoring disease of the gums, and caries. One diseased tooth may cause that whole side to be neglected and ruined. Here we see the dependence of one tooth on another, and the necessity of keeping the teeth in perfect order. The mouths are few that are free from lame teeth, such as a sensitive tooth, a sore tooth, a lost tooth, an inflamed gum in the interproximal space, a badly decayed tooth, or exposed pulp. How often have we seen neglected localities for such reasons where gums were inflamed, accumulations of salivary calculus and food debris about the teeth and cavities forming, in fact, diseased and going to ruin. Does not local lameness and local use or neglect of use account for local caries? We have all seen cases in which the superior incisors only were decayed—both proximal and cervical cavities. A very common case of local decay is buccal cavities in the second and third lower molars. This place is so far back that it is little used and difficult to keep clean. Sometimes we find a number of proximal cavities in the bicuspids and molars or it may be a few proximal and cervical cavities in the region of the cuspids. The first molar, which so often falls an early victim of caries and about which so much has been said and written, often has a bad influence on its neighbors, during the period from ten to sixteen years of age. Its location is good for use but bad for disuse, being the central tooth in the row of grinders."

There is considerable difference in the cleanliness of mouths between meals due to what may be called its activity which seems to have quite an influence on the progress of caries. Some mouths are naturally active and clean, while others are still and stagnant. The movement of the different parts of the mouth and the flow of saliva tends to cleanse. This activity or cleanliness of the mouth may be a natural tendency of the individual to be clean, and may be influenced by occupation. The active, outdoor life of the farmer would favor this more than the indoor life of the bookkeeper at his desk. The speaker or teacher would be influenced by their position more than the laborer to have presentable teeth and a clean mouth.

"It is quite an easy matter for the experienced dentist to tell by the condition of the teeth and gums which side or which particular teeth are most used. Caries may be local or general. Its progress may be rapid or slow or almost stationary and at times the mouth seems immune. These various phenomena have a cause and when environment has received the attention and study it deserves the reason should be plain. Hard, dry foods favor health of teeth and gums while soft foods tend to the opposite condition, and the more active and cleanly the mouth, the more it favors immunity. Formulating, then, we have: Hard, dry foods tend to immunity. Soft foods tend to caries. Local use tends to local caries in the places unused. An active and clean mouth tends to its slow progress." Or, in form of a table, we have:

HABITS OF THE MOUTH.			CONDITION OF THE MOUTH.	
Foods.	Use.	Activity.	Cavities.	Progress.
Hard.	General.	Active.	Immunity.	....
Hard.	General.	Quiet.	....	Rapid.
Soft.	General.	Active.	Many.	Slow.
Soft.	General.	Quiet.	Many.	Rapid.

HABITS OF THE MOUTH.			CONDITION OF THE MOUTH.			
			Used Teeth.		Unused Teeth.	
Foods.	Use.	Activity.	Cavities.	Progress.	Cavities.	Progress.
Hard.	Local.	Active.	Immune.	....	Many.	Slow.
Hard.	Local.	Quiet.	....	Rapid.	Many.	Rapid.
Soft.	Local.	Active.	Many.	Slow.	......	......
Soft.	Local.	Quiet.	Many.	Rapid.	Sordes.	......

Some observation and thought along this line would probably account for all the various conditions of the mouth.

This table must not be taken as literal, as it has not been proven by laboratory experiments, but it must be taken as showing the tendency of the relations between the habits and the conditions of the mouth.

You are all probably familiar with the theory of Drs. Black and Williams, that immunity depends on a condition of the saliva, which prevents the formation of gelatinous microbic plaques that it is a constitutional influence on the saliva. In one place Dr. Black says: "That observations already made render it certain that this beginning of caries depends on the condition of the oral secretions," but he does not state what those observations are. In another place he says: "The effect of these studies is to divert the search for those factors from the teeth themselves to the surroundings of the teeth or the oral fluids," which would imply that he was not sure but that the cause might be local.

The constitutional theory does not harmonize with the phenomenon of local caries or groups of cavities, as the saliva bathes them all, and if it would allow or prevent caries in one place, it would in all places. In his essay under local immunity we find where caries remains stationary, while other teeth are attacked and destroyed. Caries seems to be a matter of opportunity or favorable condition. To illustrate: Take a so-called immune mouth and excavate a cavity on the buccal surface of a lower molar deep enough and with undercuts to catch and retain the food, would not that tooth decay? I think it would in any mouth. Immunity seems to be due to a freedom from lodgments of starchy foods or to a breaking up of the plaques by mastication. Food lodgments are probably necessary to locate a plaque, and may not a prevention of the formation of plaques be due to their being broken up or disturbed by mastication rather than being prevented by any property of the saliva?

A nice illustration of the value of lack of food lodgments or cleanliness, is where the walls of a cavity break down so that it becomes self-cleansing. The decay is retarded or completely stopped. Dr. Black says: "That even where the imperfections of the enamel are such as to form cavities in its substance reaching to the dentine, no decay has occurred during a long life." This was more than likely on the occlusal surface of the mouth of one who was in the habit of using his teeth well, so that micro-organisms could not colonize there. The frequent disturbance was unfavorable.

There are many things in Dr. Black's essay that point to local causes and in one place he says, "At first glance this influence would seem to be local only." Let us review a few of his observations and conclusions. First in speaking of the influence of heredity he says: "When the family remains in one locality the children living under conditions similar to those of the parents in their childhood, the susceptibility to caries will be very similar in the great majority of cases. These will hold good even to the particular teeth and localities first attacked, the order of occurrence of cavities and the particular age at which they occur;" but, "In those who have been changing residence or in families that have changed their manner of life there has not been the same close similarity." This illustrates how by a change of residence especially to that of a different country where the foods and habits and perhaps the occupation are quite different all have an influence to change the conditions of the mouth for the better or worse, while the same foods in the same locality and same surroundings produce like habits, and consequently like conditions of the mouth in parents and children. But why should a change of locality have any influence on heredity?

Dr. Black hits the local nail square on the head when he says: "I regard this preservation of the complete and free use of the teeth in the mastication of food without hindrance from lodgments about the teeth or from pain as the most important element in bringing about an early abatement of susceptibility to caries." Here we have the prevention by natural cleanliness from use. He says: "At first glance this influence would seem to be local only, but it seems to me that there is a general influence as well, an influence which reacts in a general way producing a better condition of the secretions and of the cellular elements of the whole person." Now how does he harmonize this with what he says further on, that "There are no especial forms of ill-health that particularly predispose the teeth to caries?"

Again he says: "The rule is that the hereditary predisposition to caries disappears with the coming of adult life." The habits of natural cleanliness are not usually early acquired and also when adult life is reached the places that give opportunity will have already decayed.

He says: "Keeping the teeth in order hastens immunity." This gives them a chance to use the teeth and use brings immunity by breaking up or disturbing the plaques, but if the teeth are allowed to decay immunity does not come till the diseased teeth are lost or there are so few teeth to do all the work that it cleans and saves them.

Again he says: "It is the persistence in the beginning of decay in group after group of localities in regular succession." This harmonizes with local but not with constitutional causes. It is easy to understand how the use of the teeth might be changed from one locality to another from time to time, and so change environment. In this case having so many fillings she might have changed from one side to the other in the use of her teeth from time to time to accommodate a lame tooth and hence continually change the environment. In another place we find a good argument for local causes where he says, "My observation is that a failure of vigorous mastication delays the coming of immunity seriously;" also, "The worse forms of cases that come to us are those in which caries has made such progress that the teeth are already practically out of use in mastication."

Now, unless the predisposing cause of caries is constitutional the word immunity is not an exact word to use in this connection. It is the opposite of susceptible, and if the predisposing cause is local then teeth are always susceptible, and only need the opportunity or favorable conditions or exposure, so to speak. The word immunity will be misleading when used in this connection, as students and patients will take it in its strict meaning and infer that the teeth are free from attacks of caries as yellow fever immunes are free from further attacks of that same disease. The words immunity and susceptibility also carry with them an idea of contagion, while there is no contagion in caries. It needs a favorable condition, an opportunity. Heretofore to express immunity Dr. Black has used the term "conditions are unfavorable," to express suceptibility he would say "the conditions are favorable," which seem exact if the predisposing causes are local, and until we know just what those causes are, our terminology may not be exact.

If the cause of caries is local, to prevent it we must use local means, such as encouraging the use of hard foods, keeping the teeth in perfect order by the use of the toothbrush, antiseptic dentifrices, and by artificial mastication or the use of chewing gum. The importance of the use of hard foods to cause vigorous mastication is very apparent. It is exercise for the parts, cleans the teeth and keeps the gums firm and healthy. The brush removes the food debris and prevents cervical cavities by breaking up the plaques. To the gums it is a substitute for a lack of hard food. It keeps them healthy and firm, so the gum septum will fill the interproximal space. The brush should be used intelligently, so as to cleanse all parts and not brush to excess, to keep the gums in a normal condition and not cause recession. The dentist should carefully instruct his patient in the use of the brush. It should be used immediately after meals, or after eating, for if we have no food lodgments no plaques will form. The idea is to starve the bacteria, to make the environments unfavorable. Williams strongly advises the use of antiseptics, and thinks "that by their faithful use two-thirds of the decay now going on is preventable." By chewing gum we get an artificial mastication which exercises the parts, and which is almost a perfect means of cleansing the occlusal surfaces. It would be interesting to know the condition of a colony of microörganisms in an occlusal pit or fissure after some boy or girl had chewed gum for about twenty or thirty minutes. It would at least quite effectually clean out all food debris so that caries would progress very slowly. Chewing gum is generally considered not very elegant, and has been ridiculed by parents and teachers; but if its usefulness in saving the teeth were known its use for this purpose would soon become popular and have a place on the table beside the toothpick, and paraffine, its whiteness and purity, its consistence and its price, recommends itself for first place.

CHLOROFORM IN DENTAL PRACTICE.*

BY F. A. WELD, D. D. S., BELVIDERE, ILL.

In presenting this paper to you to-day I do not wish you to infer that I am passing as an instructor in the art of administering chloroform, or that I place myself upon a higher level than the many practitioners who are called upon to use an anesthetic in their daily practice. My object is only to present to you briefly a few of the facts and experiences which have occurred to me in the short time I have been in practice, and, if possible, show you that chloroform properly handled is a very *safe* anesthetic of untold value in relieving the many painful operations occurring almost daily.

This drug was simultaneously discovered in 1831, by Guthrie, of the United States, Soubeiran, of France, and Leibig, of Germany. Its present name was given it later on by Dumas, and it was first used as an anesthetic by Sir James Simpson, of Edinburg Chemically it is known as terchloride of formyl, and is obtained by the action of chlorine upon alcohol. The methods employed being either the addition of chloral hydrate to an alkaline solution, or of chlorinated lime to ethyloxide. This is distilled, and subsequently purified by the addition of sulphuric acid, sodium carbonate and lime, and redistillation is then resorted to.

It was formerly supposed that this was a stable solution, but later it was found that even under ordinary circumstances, such as exposure to light and air, it had a tendency to decompose, forming hydrochloric acid and carbonylchloride. This latter substance, according to our best authorities, is the cause in most cases, of after sickness, and can be avoided by keeping a little slaked lime in the bottle and filtering the supernatant liquid as required.

Without enumerating its other properties, which are well known, we will proceed to find its desirabilities as an anesthetic. The first question naturally arising is, "Is it safe?" Gentlemen, I think it is. That is, as safe as any anesthetic, for they all carry in their composition and administration an element of danger, and no anesthetist should overlook this fact or for one moment allow his attention to be taken from the patient.

Though chloroform may be contraindicated in many cases where the period of anesthesia is to occupy an extended period of time, for, as Buxton says, "Chloroform, whether through poisonous effects on protoplasm or in some other way, exerts some deleterious influence upon the tissues of patients," yet for a *dental* anesthetic, where the period of duration is to be short, it is perfectly safe. The great danger point being, *then*, at the very *beginning* of anesthesia, when it should be given slowly to avoid paralysis of the respiratory and inhibitory centers. Then as soon as respiration and circulation are regularly established, the patient should be pushed rapidly to complete anesthesia. Not until the third stage should any operation involving the fifth nerve be attempted on account of the danger of disturbing the centers already referred to.

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*Read before the Northern Illinois Dental Society.

Dr. Sayre, of the Bellevue Hospital, reports over 5,000 cases of chloroform anesthesia without serious symptoms in any case. His method, though, is apt to strike terror to the heart of an orthodox anesthetist who has been taught that ninety-five per cent air and five per cent chlorofrm were the proper proportions. Dr. Sayre says: "Use as small an amount of chloroform as possible and allow the patient to have no more air than can be helped which has not been thoroughly impregnated with chloroform." His reason for this being that oxygen being the natural antidote for chloroform will, if admitted when serious symptoms occur, immediately revive the patient, and also that the small amount of chloroform thereby required to produce anesthesia obviates the danger of blood and tissue change during the period.

The forgoing formulates the question, "How much chloroform is required ?" Gentlemen I do not know. The quantity varies with the patient. I have a container holding two ounces from which seven patients have been anesthetised, and in that proportion there is still enough left for at least three more. Some patients who seem particularly susceptible to its anesthetic action will not require more than twenty or thirty drops while others require more, and after anesthesia is complete only a very small amount is required to keep them in that condition for any desired length of time, giving you ample opportunity of not only removing all teeth necessary but also roots which are imbedded in the gums.

The position should be recumbent and the forming of a mass or clot of blood in the throat avoided. The question of having recently eaten is of no importance as vomiting seldom occurs. In fact our latest literature on the subject advises against its administration on an empty stomach as the vapors, more or less of which will be swallowed by the patient, act as a local irritant on its mucuous membranes. This is largely obviated by the presence of food.

As for its contraindications, I do not know that it has any where any anesthetic would be used, not even excepting nitrous oxide which has long been conceded the safest.

The method I use, if such it may be called, is as follows: An ordinary face mask is covered with a heavy material to prevent the ingress of air to the patient, which has not been thoroughly impregnated with the vapor. I prefer eiderdown with the "fuzz" inside. A bottle is then provided with a cork in which two longitudinal slits have been made, though one will do. If two are used one is for the ingress of air to the bottle, the other for the egress of chloroform which is carried to the mask in small drops by a piece of cotton. The drops being supplied slowly at first, with the mask held closely to the face, the sensation of strangling is avoided, and coughing and struggling are practically unknown. But after all, gentlemen, it matters little what text-books you follow or what demonstrations, have been witnessed there is nothing like continued experience to enable you to reach any desired degree of proficiency. The great prerequisites of a successful anesthetist are self-confidence and a thorough knowledge of *what* constitutes serious symptoms and the means of combating the same.

SQUARE, VERSUS ROUND IN THE PREPARATION OF CAVITIES.*

BY DR. ROBERT M. WALKER, PEORIA, ILL.

In presenting this subject to this convention, I lay claim to no particular originality, nor can I hope to present anything new; my design is simply to emphasize a few of the points I have picked up as I have gone along, hoping that, since they have proven beneficial to me, they may be of some little use to some one else.

In the early days of dentistry, when the noncohesive gold was almost the only material used for the filling of cavities in the teeth, there was naturally no attempt at the extensive contour operations of the present time; also, partly from lack of the proper instruments, there was little extension of the cavity beyond what was actually broken down as the result of caries; modern extension for prevention was unheard, nay, even undreamed of, and in the nature of things impossible.

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*Read before the Northern Illinois Dental Society.

The common, and under the circumstances logical practice, was merely to remove the decay, make the cavity as nearly round as possible, removing only as much of the tooth structure as was absolutely necessary; slightly undercut the walls all around and fill, the entire operation being done with a few chisels, excavators, hand burs and hand pluggers, the filling when inserted, being finished with burnishers, files, or slabs of stone, without the use of dental engine, rubber dam, or mallet.

And let me say here, "all honor to the conscientious operators of those times," "they builded better than they knew," as evidence of which, we find even to-day in the mouths of elderly people, fillings of this description which have stood the wear and tear of over fifty years; those are the men who laid the foundation upon which the superstructure of modern scientific dentistry has been erected; and I believe it is well for we younger men in our present day progress, and in our eagerness in the pursuit of new and original theories, not to lose sight entirely of the achievements of the fathers of the profession.

With the introduction of the rubber dam, dental engine, cohesive gold and amalgam, many teeth hitherto abandoned to their fate were filled and preserved, but the profession was slow to learn that an entirely new and radical treatment in the preparation of cavities was necessary. The methods which have been pursued successfully in small cavities with noncohesive gold were tried in large cavities with cohesive gold and amalgam, the result being either imperfect adaptation of the gold to the walls of the cavity, thus inviting renewed decay, or the exposed surface of the filling being so much greater, with little or no increase in retention, it was unseated by the force of mastication.

These unhappy results were very discouraging and in casting about for the causes, blame was laid upon many innocent things, among which all the new materials and appliances came in for their share of condemnation. Some operators laid the blame upon the rubber dam, in that the teeth were dried out too much, thus causing the renewed decay, and they straightway discarded it and returned to noncohesive gold and submarine fillings. Others made the dental engine the scapegoat, contending that it heated the tooth structure unduly, thus impairing its vitality; and, sufficiently were they endowed with the courage of their convictions, that some few even discarded it. Still others blamed the cohesive gold because of its inadaptability, and they at once returned to noncohesive. Amalgam they could not tolerate under any circumstances; those teeth which could not be filled with noncohesive gold or tin foil remained unfilled, till the cements came into use. The first reasons advanced are too absurd to call for further notice, the last was partly true; cohesive gold is not as adaptable as noncohesive, or in other words it requires different manipulation, and the intelligent operator has now learned that neither one nor the other can be universally used or condemned, but that each has a place, and by the happy combination of the two he is enabled to obtain the most satisfactory results.

But in thus laying the blame upon the lack of knowledge as to the manipulation of cohesive gold we get only at a part of the cause of failure; we must look further, and in so doing will find that the greatest fault was a failure to grasp the proper ideas and principles, in the preparation of cavities, in view of the larger and more extensive operations we are now called upon to perform. As the old plan has been to leave the cavity as nearly round as possible, we followed the same plan; since a slight undercut did not seem sufficient for retention, we took to drilling little pits into dentine, in various directions, and succeeded in weakening the tooth without adding but little to the stability of the filling; the result in a majority of the cases was failure. As the theory of extension for prevention began to be preached and demonstrated, it was found that in order to make the extensive operations this process demanded, a very radical change in the preparation of the cavities became an absolute necessity; a filling in a proximal cavity in a bicuspid or molar with the buccal and lingual walls extended sufficiently to make them self-cleansing, but otherwise prepared under the old plan, would hardly stay in place till it was completed, much less stand the strain of mastication.

It was therefore seen at once that radical changes were necessary, and if you have not been wearied by this preamble, I invite your further indulgence while I discuss the various points wherein these changes have been made.

I will first discuss those proximal cavities in bicuspids and molars, and invite your attention to the cervical wall. We know that if it is extended beneath the margin of the gum, the filling properly finished and the gum kept healthy, there is no further danger from decay in that region.

This wall is the foundation for our filling now, and if it is made square and flat we have a broad, even surface upon which to build; no grooves or pits are required; there is no danger of the filling rocking in starting or after it is under way; there is no danger of its being knocked loose in malleting, while the subsequent impact of the imposing teeth serves to drive the filling more solidly into position, instead of having a tendency to cause it to rotate, as was the case with the old rounded form.

This is particularly true from the fact that the pressure from the opposing teeth is not distributed squarely upon the filling; the motion of the teeth upon each other in mastication is a sliding one from side to side, and is just the motion necessary to cause a filling built upon a rounded surface to move or roll, and any motion of a filling, however slight, is but the beginning of the end.

Therefore, in making this wall square we get a firm seat or foundation, the work of building the filling is simplified, it can be condensed more solidly, and when completed will stand a greater strain without giving way.

The next point in these cavities is the step, or extension into the sound portion of the crown. This should have a square, flat floor, for the reasons I have stated in regard to the cervical wall, and also for the reason that this permits a greater amount of filling material being used and lessens the danger of the filling breaking at the junction of the main portion with the step.

To those operators who use round burs almost exclusively (and I formerly was one) it may seem a difficult matter to prepare these square surfaces; but by using inverted cones with their ends toward the floor of the cavity, the operation is as simple as the proverbial one of "rolling off a log."

In those cavities in the posterior teeth, which necessitate the cutting out more or less of the grooves or fissures in the occlusal surfaces, the flat floor will be found to possess many advantages over the round; with it there is little or no undercut necessary for retention, the filling is more easily inserted, and more solid and substantial under mastication.

I now invite your attention to the anterior teeth and to those cavities between the incisors, or incisors and cuspids, which do not involve the cutting edge. In these cases, if the opposing teeth come in contact with the fillings at all the force is from within out, and little or none is exerted in the direction of the apex of the root. The cervical wall should be made flat and square, however, to simplify the insertion and condensation of the filling, and, in fact, a general rule may be laid down that the wall against which the filling is to be built, which thus acts as a foundation for it, should be a square surface. By following this we have square cervical and pulpal walls, at right angles to each other, and this with slight undercuts along the labial and lingual walls and a slight deepening of the incisal angle. The filling when inserted is held in position by a good square shoulder upon all sides, and cannot be forced from the cavity without fracturing some of the surrounding tooth structure. In those cases involving the incisal angle, in order to solidly retain the filling, a step is necessary at that point, and here is one of the most vital points for the application of the square surface in preference to the round.

The amount of filling material that may be used at this point is necessarily small. In proportion to the balance of the filling the strain is very great, therefore by making the square floor additional seating capacity and strength of material is obtained without weakening the tooth or causing any unsightly loss of tooth structure.

The general cases I have described include the most common forms of cavities met with in the average practice. Those special and peculiar cases which present themselves to every operator, and to which no set of rules apply fully, must be governed by the circumstances surrounding them.

It is impossible to lay down arbitrary rules for anything in dentistry, but I believe after a careful trial that the square, as applied to the preparation of cavities, is an absolute necessity in the preservation of the teeth, which is our greatest aim.

DENTISTRY IN THE '50S AND NOW.*

BY DR. O. WILLSON, AURORA, ILL.

Dentistry in the early '50s, though hoary with age, was yet young compared with that of to-day, whether the profession be judged by its schools, its literature or manipulative ability.

Its possibilities do not seem to have dawned upon the typical practitioner, consequently his surroundings and contented mind bespoke his real attainments.

To fill the best of the decayed teeth, to extract and to insert teeth on plates, sometimes over old roots, was the usual summary of practice.

Caries of the teeth was caused by excess of acid in the saliva. This presupposed some constitutional disturbance, since the normal condition of the saliva was neutral, a nice balance being maintained between the acid and alkaline secretions of the mouth.

If the alkalies predominated, salivary calculus resulted. If there was more acid than was needed to make normal saliva, the acid united with the lime of the dentine at locations where the enamel was defective, sound enamel being mouth acid proof.

There were hard and soft teeth, and all grades between, the soft teeth being the most easily decayed. Thus arose two questions of far reaching importance. First, how could the saliva be kept normal; and, second, how could better teeth be produced? An alkaline mouth wash, for acidulated saliva, and an acidulated wash, for alkalinity of the oral cavity, while good, seemed but *temporary* ; the *occasional* use of these could not offset the *constant* influx of the oral secretions.

To produce hard teeth the mother and babe should have more of the food rich in lime salts ; also take the lime itself, properly prepared for this purpose.

Time seemed to indicate that vitality *rebels* at this sort of *forcing* assimilation, and the treatment waned. The hard teeth that had not ached should be filled, now and then a pivot tooth could be set upon an anterior superior root, connected to it by a piece of " drawn hickory." The balance of the decayed teeth were consigned to the tender mercies of the turnkey and forceps, without benefit of anesthetics.

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*Read before the Northern Illinois Dental Society.

The filling materials were soft gold foil only, tin foil and silver amalgam only, with gutta-percha for temporary work. Front teeth were filled from the palatal aspect and it was not in good form to have the filling in sight.

The foils were tumbled into balls by the tweezers, or hand rolled into cylinders, the length of which should be a little more than the *depth* of the strong walled cavities, the cylinders being placed like cigars in a tumbler.

Dentists made the amalgam they used by filing Spanish silver dollars and cutting the filings with nitric acid. They then *precipitated* with salt, turned off the acid, washed the powder with water, dried it, mixed with mercury, washed with alcohol in the hand; in napkin squeezed with pliers, and manipulated until it squeaked. Then it was ready for use.

All preparation of cavities, all filling and finish was made by hand and without the mallet.

The stock of the laboratory was as simple as it was substantial. Gold, silver and "Jones, White & McCurdy" teeth—now the "Ne Plus Ultra White's" teeth.

The typical dentist rolled gold and silver coin into plates, and became expert at refining gold scraps. After passing the magnet through them and melting, if the gold did not roll smoothly, by inspecting the edge of a broken piece, he recognized the offending metal that made it brittle, and thus knew what to put into the crucible with it for assay.

Air chambers! Well, yes; and if the plate did not fit, after considerable time in use, then the long headed, if not "level headed" hammer was used to give the air chamber a few short raps on the palatal side, then the pliers to turn up the back edge of the plate. Patients did not then seem so exacting as now. If they did not get used to their artificial teeth in three months, it was suggested that they "chew thread."

As was customary, we paid one hundred dollars to study dentistry in an office, and made *our* bow to the public as dentist in '52. The course of study in a school of that kind is not extensive, or the training systematic; indeed, it was quite "elective"—a sort of go-as-you-please, "catch as catch can." Harris' "Principles and Practice of Dentistry," "Tomes' work, and "Samson on Chloroform" were the books from which the bulk of dental pabulum, was drawn. The O. dental college, our "alma mater" later on, was, we believe, the third of the only three dental colleges then in existence.

If our typical preceptor did come off his shoemaker bench, and formed his awls into excavators and pluggers, he made as durable fillings as we have ever noticed.

Dentists were comparatively rare, and dental college graduates almost phenomenal. Thus was drawn to them a large measure of attention and deference. And, gentlemen, if dentists *were not* " giants in those days," they had a clientele of patients, their bulwark of practice.

See that old time preceptor of blessed memory, large hearted, jolly, perched high up in life's inviting stations, bidding his friends, right and left, " good day " on the street, with inquiries for their families, ostensibly as if they had been in his thoughts all the time since he last saw them, each and every one. Or when weary, he would sling his office coat, and go fishing, hunting, or with his wife or a friend, take a spin behind his fast moving pacer. No matter, the patients would wait, or come again.

Yes, dentists in those far away days had a clientele, as many another of you may have had, even as the dear old family physician, the loyalty of whose patients was akin to worship.

But past is all their fame. Up through the toil and investigation of near a half century, and on the threshold of 1900, we may, we trust, with commendable pride contemplate a good measure of advancement.

It is true, that with all the aseptic remedies at our command caries of the teeth still runs riot; but it is also true, that notwithstanding the temptation vouchsafed to patients by anesthetics, the number of extractions are lessened by more than one-half that it was in the early '50s, when the " slaughter of the innocents," reached the maximum, and it does seem if we are nearing the day phophesied by the lamented Dr. Wm. H. Atkinson who said, " The time is coming, when to extract a tooth or root will, as a rule, be considered malpractice.

What, *now*, is the cause of caries of the teeth? Not free acid, not sweets or sours, taken into the mouth, as a rule, but " acid forming microörganisms, attaching themselves to the enamel."

Now that the offender is discovered, according to present day literature, would that a Williams, a Miller, a Pasteur, or a Black may speedily tell us how to destroy him utterly. *All teeth*, as a rule, should be filled. There *are* no soft, and no *hard* teeth. No teeth are barred from having *gold* fillings by reason of soft dentine; and Black is white.

Dentistry of to-day means, in part, cohesive gold foil, non-shrinking amalgam, cement, rubber dam, the dental engine, applied anesthetics, vulcanite, crown and bridge work—surely a fine array of benefits to all concerned.

The number of dental colleges has increased about one a year, for the average. Fifty reputable dental colleges, each graduating, say, seventy-five dentists on the average per year, the practitioners now easily numbering 20,000 in the United States, 500 of whom are women. The annual increase of dental literature vies with that of the medical profession. Harris' "Principles and Practice" has reached its thirteenth edition; Tomes' "Dental Surgery" its fourth, and his "Anatomy" its fifth edition. Richardson's "Mechanical Dentistry" its seventh edition, while Broomell's "Dental Histology," Gorgas "Dental Medicine," Warren's "Pathology," Taft's "Operative Dentistry," and Talbot's "Interstitial Gingivitis," and the score or more of monthly dental journals, some of which are upon the tables of all progressive dentists, is but an indication of the dental literature at hand. Besides these, dental societies all over the United States, scattering great seed thoughts up and down this broad land.

The large increase in the number of dental colleges has not only fostered emulation and stimulated research in all lines of our practice, it has increased competition. First among the colleges themselves, but also among their graduates, encouraging the commercial spirit in the profession. This is communicated to the patient, so that among his first questions is the price of our services.

It was hoped, and with good reason, that reputable colleges, especially with an increased curriculum and a good dental law regulating the practice of dentistry, might keep the standard of dentistry above limitless money competition; that high grade service might continue to command a remuneration somewhat above that claimed for mere mechanism.

Such is the impetus of the commercial spirit that it does seem as if the middle wall of partition between the professions generally and the trades is crumbling. Either the latter are leveling up or we are leveling down. Prestige, weighed in the balance of competition, kicks the beam. In other words, dentistry seems in the swim of commerce, minus its ancient factor of prestige. Its clientele seems practically a thing of the past, and there seems to be no royal road to eminence for any particular class. Individual skill is commonly avoided. It is consoling to think that ours, as well as the medical profession, is of the humane, else some whose roseate view of dental practice is, on the start, apt to be too exalted, might become discouraged, since the average annual income of the individual practitioner of either profession does not exceed $1,000.

Appointments, especially long time ones, seem irksome to the patient. He is in a hurry. We feel that we must work for him instanter, or at least begin the service, lest he take a "change of venue" to Surgeon-Dentist Jones next door. That Surgeon-Dentist Jones cannot in our judgment render near as good service as we, does not seem to overwhelmingly impress this hustling individual. He thinks a dentist is a dentist—all graduates—besides, this Jones of the dental parlors holds out extra inducements—for example in variety of filling materials and price. Cement, 25 cents; artificial bone filling or osartificial, either one, 50 cents. Phosphate of zinc or enamel, either, 75 cents; soft metal filling, 25 cents; amalgam or silver, either one, 50 cents; gold and platinum, 75 cents; gold, $1 up. But the typical dentist of to-day, cannot hope to keep on hand such a large variety of filling materials, nor can he explain all to his hasty patient.

This typical dentist even suspects that whether he use cheap or expensive stock, that physiological compatibility, anatomical construction, pathological conditions and high grade mechanical manipulation from start to finish, should *all* receive his close attention, and that his fee should be estimated on the basis of skill displayed.

Finally, we observe that fidelity along all these lines marks everywhere the true typical dentist of to-day.

Fill or Crown, Which ?*

By C. T. Dahlin, D. D. S., Elgin, Ill.

I feel myself in many ways incompetent or rather, I might more correctly say, that I feel myself hardly qualified to address this society at this time since I am so entirely unacquainted with the work it has done and gone over in the past. The subject assigned me by Dr. Chappell is one that must needs have been *touched* upon at least, with you, since it is one that could certainly not escape altogether. But, however I may present what little I may say, the subject must certainly command the respectful submission that is due to age, for the subject to *fill or crown* is one that has been before nearly every society meeting for the last ten years. And if in those ten years (and I believe that in this period crowning has been practiced far more generally than in all the years before) I say that if the discussion has only been active in these ten years, that does not make the subject a young one, for, like human beings, they can live a long time in a few years. Therefore, having a hackneyed task before me and a feeling that older men in the society should perhaps be here in my stead, I really do not know how much I am obliged to Dr. Chappell in placing me here. I will at least thank him for his good intentions, and this will admit of a story being related which, if it does not add to the practical information of the gentlemen present will not perhaps come amiss as a relaxation after the close attention to business that has characterized the meeting thus far.

The elder had achieved almost an enviable reputation as a preacher of funeral sermons. Whether it was that his discourses had the twist to them that could wring tears and lamentations from his hearers, and which seems to many to be the gauge of success on these occasions, or whether it was perhaps a more commendable cheerfulness that would tend to lessen the burdens of a sorrowing company, I do not know; perhaps it was a sort of *gift*, in which he had the faculty of accommodating himself to circumstances and to people, and had studied the gentle art of pleasing. At all events, it was a certain mark of respectability not only to the sorrowing friends and relatives, but also an ante-mortem satisfaction to the corpse, to feel that Elder Thompson was to officiate at the obsequies. But his reputation was not attained to by the easy methods of a Capt. Carter, but entailed a great deal of hard work.

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*Read before the Northern Illinois Dental Society.

The occasion of which I speak took place in the midst of winter and while the elder was enjoying the comfort of his warm home one morning and congratulating himself on the healthfulness of the community, in came a boy with the announcement that Jedikiah Wheeler, fourteen miles down the St. Charles road, was dead, and would the elder preach his funeral sermon on Friday, 10 o'clock of the morning? To preach a funeral sermon would be a hard thing to refuse to do, being next on the list to a paper for a dental society meeting, and the good man said he would be there.

On Friday morning the thermometer was down several degrees below Cairo and the tears that his old horse shed at being led out into the cold, formed icicles on his jaws that made him look like a Greenland walrus. But away they went, arriving at the house of mourning, contrary to the usual custom of being greeted at the gate with the glad hand of the new head of the family and a boy to take care of his horse, he found he was obliged to hunt a sheltered place for that animal and find his own way to the house. On entering, instead of being made to feel that he was the one for whom they had all been waiting, he rather seemed in the way; and when a hobnailed hobo trod on his toe he felt sure of it. When he tried to get near the stove to warm his stiffened hands a lowering dame said "Please to let her Annie get warm first." Finally the master of ceremonies, undertaker or executive officer, motioned to him and condescendingly told him he might now speak. The elder availed himself of the privilege and having a fellow feeling with the cold and stiffened corpse spoke, he thought, as feelingly as ever he did in his life. But when he had finished he was crowded out into the hall to make room for a local yokel quartette who sang "Brother, Art Thou Weary with Thy Burden?" Then came the drive of three miles further to the cemetery and after consigning the clay to its kind, Brother T. was of a mind after his ungracious, indifferent treatment to start straight for home; but thinking that perhaps it was an oversight and unintentional, he followed the family and relatives back to the house.

Of course, that it was away past the noon hour and his dinner time did not occur to him, but that the inner man needed reviving was natural, and the custom of serving some sort of refreshment after an occasion of this kind, probably made it a habit with him; at any rate back he drove with the family only to be again allowed to usher himself into the house. But with no evidence of a repast, and not even a drop of spirit to warm the blood, and which in these good old days might be indulged in by a minister without its being a serious lapse from moral rectitude, he bowed himself out, and started on his fourteen mile ride for home. As he turned out from the gate, out came a woman from a house across the way waving her arms like a Dutch windmill. He stopped and presently she came within hailing distance. "*Elder,*" said she, and her bosom swelled with the feeling that here was another good deed done for her fellow man and recorded in the heavenly register, "Elder, I just thought I'd let you know that I'm the one that got you this job!!"

And be it recorded for the reverend man to his honor and glory forever, Amen, that he responded by saying, "I thank you —for your good intentions."

But to proceed with the subject in hand, whether to *fill* or *crown;* it is a question that must be governed so much by individual cases and individual judgment that to take a decided stand for a change in general methods for either side is a hard thing to do. In deciding I am further reminded of the methods adopted by two dental students of whom it is related that one day being alone with a patient in the operating room of a certain college, it being late and the demonstrator having left, that as the operation progressed they were troubled as to advisability of using the rubber dam in the case, one student holding that was unnecessary, the other maintaining that it should be used. Finally as a means for reaching a decision one of the students presented the case to the patient saying, "Sir, we are at a loss to know whether in your case it is advisable to use the rubber dam or not to use the rubber dam;" but the patient said he did not care a dam. So they bethought themselves that they would toss up a coin; but, must I confess it, neither of them had a coin, and as the patient was no jay, and leery of lending his money for any such hazardous or questionable purpose, they bethought themselves that a sandpaper disk would do as well and so, I believe, finally decided that the dam was indispensable to the case in hand. I do not mean by this that the question under consideration is to be determined in like manner, but I find that two good men (one of them myself—ahem!) often differ as to the methods of procedure. I do, however, firmly believe that the tendency is in these days to resort to crowning in more cases than is just to the patient, and especially as regards the eight anterior teeth on either jaw, and too vigorous a protest cannot be made in condemnation of the common practice of placing gold caps in these positions. With due allowance for certain exceptions these hideous marks of poor taste and ill breeding being so common it seems to me that it reflects a little on the dental profession as well as the people who wear them.

I cannot hold myself free as one who has never gold capped a front tooth, but it has only been after much persuasion for some other means and in inconspicuous cases. To be sure there are those people whose only contentment lies in and whose equilibrium can only be restored by the acquisition of a front tooth of burnished gold, and with such people I have never been so purse-proud that I could afford to, nor so deeply grounded in my convictions that I would refuse to make them a gold cap, nor even begrudge the trouble of getting out a little fresh *rouge* if I thought a mirror polish would especially please them. But I am sorry for them, and should be sorry for myself if it were not for the $10 or $15 in my pocket, which has a wonderfully consoling effect on me—as well as the rest of mankind, I have noticed.

But even with the use of other porcelain or porcelain faced crowns, I grow more and more into the belief that in our colleges we are taught, and our tendency naturally carries us into the practice of doing too much crowning. Take it first from a purely business point of view.

We are not practicing dentistry for our health and that phase of it will bear touching upon. Admitting that for the time being you get more out of a case by crowning a tooth than you do by placing in even a large gold filling, is it not better to accept your smaller fee for the filling with the prospect that at the failure of the tooth and the filling you may then besides have a crown to make? I do not mean that this crown is a thing that you will have to make within say a few years, but if your filling preserves the tooth from three to a half dozen, your patient, if he or she is a reasonable person, is satisfied and the operation of crowning is accepted as a natural result and a feeling that everything else has been done. Some of you may say that that plan runs too far ahead and that you cannot count on the future. The patient may be gone or you may be retired with the fortune you hope to make in these present years. True, the patient may be gone—you take some chances there—but as for your having that fortune and retiring do not waste any time dreaming about it—rather go out and clean up your laboratory. I have seen many laboratories in my time and I never saw one yet that would not be the better for a little cleaning up. Now, as to the moral obligation we owe to our patients and patrons and what should be every dentist's honest wish to do the thing that promises the best results for the people that support him. How many of us have not had people come in with a missing tooth or perhaps several with the announcement that our own work or that of some one else is a failure, and often so entirely discouraged with their experience that the suggestion of further pivoting or crowning for a piece of bridge work is unheeded, and the only thing we are permitted to do is to extract all the teeth and construct a plate?

Now, then, to go back to the beginning of the difficulty, can we not, many of us, say that in our own experience we have cut off a tooth and fitted a crown where a filling might have been used and have done good service for a few years, at least, and during this time the root of the tooth has suffered no damage, so that at the failure of the filling the case would be just as good for the adjustment of a crown as at the time it was filled? Crowns are a grand thing when every other means has failed, but we all know that there is a limit to the duration of a crown. The adjustment at the root may be ever so good, time shows us that there is a recession of the gum from the gold bands. Again, the stump of the root disintegrates, softens and breaks down. To make my point clearer: Take two teeth as nearly alike as possible in the progress of decay, and of course they will be far gone to suggest crowning, but act on my plan of crowning the one and filling the other, and perhaps the filling can be put in without devitalizing, which is so much the better. Now, then, allowing that your filling lasts from three to six years, when the time comes for crowning, is not your root usually in as good condition for the operation as it was at the time it was filled? While the crowned tooth, although apparently all right, if an examination would be thoroughly made, it would be found that changes were taking place in its substance and at the gum margin that certainly show you that there is a limit to its durability. Now, what I maintain is, that in the case of the filled tooth I have added to its life of usefulness the years that it was filled.

To be sure good judgment is to be exercised in all things and a clear statement to the patient as to the plan and the end striven for is a very essential thing and should never be neglected. As to this plan of procedure I wish to emphasize it more particularly as it may be applied to the front or visible teeth. As to the grinding teeth, beginning with the second bicuspid and molars, I am not sure that such strenuous efforts need be put forth, for the reason that whereas a front tooth, weak from much filling, can be guarded and kept from unusual strain, to caution a patient that he must be careful not to use a grinding tooth any more than he can help is a policy that plainly must be condemned not only because damage comes to the opposing tooth and all the teeth about it from lack of use, but there is a constitutional damage done a man when you caution him not to masticate his food. So that although I still would follow the practice of filling in these teeth as long as their utility and durability can be maintained, yet as soon as conditions make them anything else, I would not hesitate in the crowning process. Having expressed myself unreservedly as to the use of the gold cap for the front teeth, I now place myself enthusiastically in favor of the use of the same appliance as the need for crowning may appear in the molars and even in second bicuspids. The gold cap here has to me very obvious advantages and recommends itself especially in all cases where any considerable part of the tooth remains.

Not only because that same part of the tooth may be utilized in adding to the strength of the whole, but because in escaping the necessity of grinding the denture down to the gum margin, which is necessary in the adjustment of a porcelain crown. One needs to do but comparatively little grinding, which is a thing that is appreciated greatly by the patient, and not less, I think, by the dentist, to both of whom it is something of a nightmare. That the gold cap, nicely adjusted, will far outlast any other crown is my firm conviction, based on careful observation in my own practice of thirteen years, and that of the pioneers in this class of work who antedate me some little time. In conclusion I would forcibly impress on you the one great and underlying essential in all practice, the keystone, the king pin, the cap stone as it were to success—do not forget to get your fee. I think we are all agreed that the meanest class of people under the sun are those who do not pay their dental bills, and I wish to tell you of the meanest man in his class whose actions have, to me, but recently come to light. It seems that some good brother practitioner had crowned a tooth for this quintescence of meanness, and did it conditionally by accepting $5 on a $15 piece of work, the rest to be paid as usual—later.

Well, it was the misfortune of the dentist, and of course the fault of the patient, that the crown was loosened at the first succeeding meal and to the horror of the mean man, in the excitement, swallowed. Of course, he rushed back to the office in a great state of anger as well as fear. The office I may incidentally mention was—as usual, when any complaint is to be made—full of people. But that is neither here nor there. He was soon gotten into the private room and the door closed. Here the complaint was fully stated and although the man was in a measure fearful of an intestinal obstruction, he must first vent his spleen on the dentist and remind him that he had paid him $5 on a crown that was now lost to him and demanded the return of his money. This the brother justly refused to accede to, pointing out that he received but $5, which was no compensation for his time and the mass of gold that was now in the other's stomach, and which he made him believe was worth the balance of the whole amount, or $10. Thus they wrangled, but the mean man, bethinking himself of the danger of his life, was willing to compromise by standing half the loss or paying an additional $2.50 if the dentist would furnish the emetic. This was acceded to, but I ask you to believe me, all the scurvy scoundrel could be made to throw up before he left the office was two silver dollars and a fifty cent piece.

DENTINE PLASTIQUE DU DOCTEUR KLEIN.*

BY I. B. DAVENPORT, M. D., PARIS, FRANCE.

During the winter of '97 and '98, a man calling himself Dr. Klein, of Buda-Pest came to Paris, to sell his interest in a pulp-capping which he called " Dentine Plastique du Dr. Klein."

He sent around samples to dentists for trial, and a few weeks later called to ask for a testimonial.

During that time he sent to the club for our examination a section of tooth filled with cement over a capping which rested upon the bottom of the pulp chamber; this was accompanied by the statement : " That this capping and filling had been done in the mouth three years before the tooth had been extracted, the extraction having been done for the scientific purpose of showing the transformation during the three years sojourn in the mouth of the capping material into organized dentine."

We all examined the section under the microscope and easily remember the peculiar appearance of the capping.

Soon after, a call from this same gentleman on several members of the club was made to request a testimonial, which was refused; but not long after we all received a circular (which I have brought along) recounting the virtues of the plastic capping and containing an engraving of the sections of tooth sent to us for inspection, with the names of nearly all of us appended to a testimonial in favor of this material.

Nearly all the names on that circular were placed there either directly against a specific refusal to allow their use, or without being asked.

This circular appears to have been published all over the world (it lately appeared in a Mexican dental journal) with our names added against our wish or knowledge, and is helping to sell this stuff, of whose composition we know nothing.

Now, about that piece of tooth sent for us to inspect and this drawing made from the same, which forms part of the circular to which our names are appended, Mr. Dalton can tell you and has kindly consented to do so.

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* The above paper, read before the American Dental Club of Paris in October, with the accompanying protest, were voted by the club November 4, 1899, to be sent for publication to leading dental journals of Europe and America.

Mr. Dalton is an expert preparer of objects for microscopical study; his work in the form of "Dalton's Gems" is well known.

Mr. Dalton said:

Gentlemen: Some time ago a friend brought me a section of a tooth, of which a gentleman unknown to me wished a drawing made, showing particularly the appearance of a substance under the filling. This cut in the circular mentioned by the essayist is a reproduction of the drawing made by me, excepting that these heavy lines have been made over my drawing, as if marking it off into little squares; in all other particulars it is as I drew it.

When I examined the section from which the drawing is made, I noticed a familiar substance occupying part of the pulp chamber and supporting the filling. I scratched out a slight fragment, placed it under the microscope, and found it to be as I first supposed, a section of cuttlefish bone.

I am not a dentist, but when my friend came for the drawing, I casually remarked: "That must have been a clever idea to place a light support of cuttlefish bone to build the filling upon." My friend replied, "Get out with your cuttlefish bone, that is a new formed dentine."

I was greatly surprised, as I supposed he knew its composition. After some difficulty he was convinced, but not until I had shown him under the microscope, pieces of this capping side by side with pieces cut out of cuttlefish.

The essayist continued:

Gentlemen: From Mr. Dalton's remarks you see the imposition shown in that section of tooth and in this drawing which has marked over it in large letters:

"Dentine Plastique du Docteur Klein de Buda-Pest,"* view showing the transformation in the pulp chamber after three years' sojourn in the mouth.

It seems evident that this device was intended solely to make a favorable impression and facilitate the sale of a product which, if as good as pretended, ought not to need so much misrepresentation.

This improper use of our names gives a false impression.

Mr. Dalton then showed under the microscope preparations of cuttlefish bone which were made on the spot.

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*Dentine Plastique du Docteur Klein de Buda-Pest. Vue de sa transformation dans la chambre pulpaire après trois mois de séjour dans la bouche.

PROTEST.

We, the undersigned, whose names are appended to the affirmation of the success of "Dentine Plastique du Docteur Klein," have never given consent to the use of our names in that connection :

J. G. Brigiotti,
E. A. Bogue,
G. C. Daboll,
I. B. Davenport,
C. V. Du Bouchet,
Chas. Hotz,
Theodore W. Evans,
Dr. Henry Didsbury,
J. H. Spaulding,
John Evans,
J. Michaels,
A. Hugenschmidt,
John Didsbury,
L. Saussine,
Geo. Roussel,
W. S. Davenport.

A UNIVERSAL ROOT FILLING IMPRACTICABLE.

BY WILLIAM H. TRUEMAN, D. D. S., PHILADELPHIA, PA.

There are, in the whole domain of medicine, but few recognized specifics; and in the whole field of surgery there are but few operations, if any, in which the operator can assure the patient of absolute safety and success. Pathological conditions and disarrangements of our anatomy requiring the services of a physician or surgeon for their amelioration or removal are so complicated and complex, omniscience alone can, in the beginning, predict the end. Were it otherwise, all untoward results in medical or surgical practice could be justly charged to the science, or its practitioners. Entrance into the territory of a dental pulp, its extirpation, treating pathological conditions arising from the various abnormalities associated with its presence, its devitalization, or its removal trench very closely upon the domain of surgery, and partake in full measure of the uncertainty, the accidents—avoidable and otherwise—that contribute to make surgical practice a chapter of incidents, of painful surprises, of worry, anxiety and care. Lancing the simplest abscess may be followed, and has been, despite all the precautions modern science has provided, by septicemia and death. While we have laid down for our guidance certain rules which a careful study of extended experience has demonstrated tends to lessen the dangers of surgical practice, no one for a moment pretends that they are universal in their application, or that their faithful observance insures safety, or that they in the slightest degree release the practitioner from the exercise of an educated and discriminating judgment. There is in every case an unknown factor that must be estimated and allowed for at the moment of operating or in subsequent treatment, as it develops and is recognized.

These remarks and those that follow have been suggested by reading an editorial in the November (1899) number of the DENTAL REVIEW entitled, "A Plea for Universal Root Filling." The title is slightly a misnomer, however, for the writer's plea is not for "universal root filling," but rather for a root filling so excellent both in material and method that it will merit and receive universal adoption. He suggests that upon many points the profession has reached generally accepted conclusions, and that in some departments of dental practice the ways and means are well fixed in the professional mind, while at the present time in the method of root filling there exists a diversity of practice regarding the materials employed, whether they should or should not have a medicinal flavor, or whether, indeed, it is not best to leave the devitalized pulp in position, by simply so changing its character as an organic body that it will serve to hermetically seal the apex and mechanically fill the space allotted to it as acceptably, as it certainly will more perfectly, than will any other substance we can manipulate into the space from which it has been removed. Leaving out exceptional cases, where necessarily special conditions must be met with special devices, he suggests that could the profession settle upon some one material, some one practical method for general use, an expertness in their use would develop and the matter of root filling would soon become easy and much time would be saved. Unconsciously, I suspect, he has in that suggestion fully explained the cause of that diversity of practice which he considers an evil. We have, each one, by the constant use of that method and that material we have been pleased to adopt, become experts in its use; we have learned those little points which in time become to us as instinct, by which we can manage, control and make obedient to our will the peculiarities of the selected material, and do more with it, and get more good out of it than would be possible without this special training in its use.

The writer of the editorial in question briefly outlines his own practice and would, no doubt, be perfectly willing to subscribe to and adopt any method that the profession might endorse for general or universal use embracing the points he names. Would he as willingly, however, lay aside his own well tried method in favor of another that a majority of his professional brethren thought better ? He prefers gutta-percha, does not think that a medicine or drug is needed as a component part of a pulp canal filling; and does not see that anything farther is need than to hermetically or mechanically fill the pulp canal to the apex of the root, and asks: If the foreign matter is removed and the root disinfected what more is needed? Others quite as competent and equally successful perfer some other material, they are not as confident that a perfectly disinfected root and pulp canal, even when properly filled, will so remain. They feel better satisfied to have something there that will tend to preserve or maintain the disinfected condition. They have as carefully considered the matter in all its bearings as he has, and no doubt feel perfectly satisfied with their method, and can give as good grounds for the hope that is in them as can others who have adopted, for good and sufficient reasons, methods radically different. Now, why should he, or they, be asked to lay aside modes of procedure, materials or instruments, with which they have become familiar, and with which they are satisfied, learn anew, with all that learning anew carries with it, this part of their calling, simply that the practice of the profession in the routine of root treatment and pulp canal filling may be uniform ? If the methods they are now using are to them satisfactory, what more is needed ? What can be gained by the change ? Indeed, unless conducted in a suggestive and a kindly receptive spirit, I cannot see that any good will be derived by discussing the subject at all; while if the object is to formulate certain rules that in the future it will be considered good practice to follow, and a cause for criticism to disregard, it will be a decided step backward, and can work harm and harm only. It is impossible, I take it, to ever so far reduce any operation we are called upon to perform so closely to the nature of a mathematical problem that fixed rules can be safely formulated for its performance. We have not reached that point in any department, not even those merely mechanical. Are laboratory workers agreed upon the best material for investments ? Have they all the same ideas regarding vulcanizing, the making of dies, or the swaging of plates? Are we a unit regarding plugging points; light or heavy, automatic electric, or mechanical mallets? Do we all use the same kind of gold? Has the many discussions on cohesive and noncohesive, plain or corrugated, rolled or beaten, ropes, tapes, pellets, or cylinders reached a finality ? Do we all prepare cavities in the same way, with the same instruments, or rely upon the same means for plug retention ? Is there, indeed, one single point in the whole category upon which we, as a profession, are united ? Is it not a fact that within wide limits we may safely say, "All roads lead to Rome," and the shortest and best is to each one that with which they are most familiar ?

Remember, if you please, the lesson of the " amalgam war." That attempt of the ten professional leaders to coerce the profession, although honest in motive and well intended, proved a very serious and far reaching blunder. It laid the foundation of that inertia, that want of harmony and unity that to-day keeps out of our professional societies so large a proportion of reputable practitioners. We want no more of it. We have on this and other subjects far too much egotistic domineering, assertive dictation that is none the less unpalatable when dubbed scientific. Every man is entitled to his own opinion, and to practice as he thinks best. He may be willing to listen and to learn, but is apt to regard the teacher and his teaching with about the same degree of respect that the teacher shows him.

[Other views are wanted on this subject.—EDITOR.]

PROCEEDINGS OF SOCIETIES.

MINNESOTA STATE DENTAL ASSOCIATION.—SIXTEENTH ANNUAL MEETING.

[Continued from page 1014.]

ETHICS, THE PUBLIC AND OURSELVES. DR. J. W. PENBERTHY, MINNEAPOLIS. SEE PAGE 970.

DISCUSSION.

DR. M. A. KNAPP: I would like to ask the doctor whether he has ever used a twenty-five per cent solution of pyrozone.

DR. J. W. PENBERTHY: I have not, and I would give as my reason that we cannot depend very much on a local application. I have used the peroxide hydrogen, and I would use the pyrozone only in the same line I would the pyrozone.

DR. L. C. DAVENPORT: I was a little late as usual, and only heard the latter end of the paper, but was much pleased with Dr. Penberthy's ideas of treating pyorrhea, and I am going to try his system of treating same. I must say I am not one of those who succeed in nine cases out of ten; I have not had very good success. I would like to ask Dr. Penberthy the question whether he has ever treated it through the system.

THE PRESIDENT: He answered that question in his paper. He says he depends on systemic treatment. He does not believe local treatment is effective, and his systemic treatment is largely homeopathic; I recognize the names of the drugs.

DR. W. N. MURRAY: In this advanced age in which we are living it is a very difficult matter to go to our text-books and find the proper method of doing any of the operations that come before us, take them as they come. The dental journals are much more valuable to us in that respect. I think we have an article on the treatment of pyorrhea in nearly every issue of our dental journals, in which different methods are given us by some of the learned men of the profession. The doctor has not touched on the cause of this disease at all. Personally, I think the food habit has a great deal to do with pyorrhea, and I often think that a recommendation to our patients that proper food is one of the methods of treating this disease would prove of great benefit. I know the question is often asked by mothers who come to my office and bring their children, children from six to fifteen years of age, and ask the question repeatedly, "Why do my children's teeth decay?" and "Why are the teeth of my children so unhealthy?" In nearly every case I ask them, "What do you give your child to eat?" Well, I find they have oatmeal in the morning and foods which they bolt and for which they do not have to use their teeth. While the food is all right, yet I think perhaps the assimilation of the food is destroyed by the children bolting the food, and I think many cases of unhealthy mouths are caused by just this habit. I think the teeth, if I may use the simile, are a great deal like a blacksmith's arm, they develop by use, and the mouth is made and kept healthy by eating food that they have to grind, and not only that, but the food is properly mixed with saliva and the chemical substance that goes into the stomach is in proper shape to be assimilated properly through the system. I think that is one of the causes of this disease. Of course, I know that scientists have predicted a toothless race if this food habit is continued, such as the use of fine flour and foods that we bolt and do not use our teeth for. So far as getting results from systemic treatment by medicine, I have no right to speak of that, because I have never tried it. My treatment of this disease has always been of a local nature, and I think the only medicine I have recommended has been through the food they should eat, and I will say in all candor that I have gotten results in this way. I would like to hear from some of the others on this subject.

THE PRESIDENT: Do you pay any attention to the occlusion?

DR. MURRAY: Yes, I do, in the treatment of this disease, very great attention.

DR. H. A. KNIGHT: I was very much interested in what Dr. Murray had to say, but I would be more interested if he would give us his bill of fare. I have several children at home and I want to know something about this matter. I don't know anything about pyorrhea, I don't know how to treat it.

THE PRESIDENT: Dr. Murray, the gentleman is after information.

DR. H. L. CRUTTENDEN: He wants to know how to feed his children. (Laughter.)

DR. W. N. MURRAY: I believe in oatmeal and things of that kind, but I do not believe in feeding them in such shape as they are given, putting them in the mouth in such shape that they will not grind themselves. I believe in a coarse oatmeal. Of course, Dr. Knight knows as well as I do that we have the whole wheat flour and things of that kind which, if children are gotten in the habit of eating, are very much preferable.

Dr. H. A. Knight: I think Dr. Murray is dodging the issue. He made the comparison that teeth were like the blacksmith's arm, they would develop with use, and I do not see that he has given us a bill of fare that would indicate their use.

Dr. Murray: Make them use their teeth on what you do feed them.

The President: I think Dr. Murray is under the eye of the censors. (Laughter.)

Dr. Murray: Well, I will make out a bill of fare for Dr. Knight.

Dr. H. A. Knight: I do not feel like letting Dr. Murray down yet. He has made the statement that he has obtained results by advising his patients how to eat and what to eat. I simply asked him how he advised his patients. He has not given us a bill of fare.

Dr. Murray: I have repeatedly advised my patients to adopt the Ralston system of food.

Dr. Knight: There, that's better. Now we are coming to the point; that's what I want to know.

Dr. J. W. Penberthy (Essayist): I was in hopes this paper would bring out a little more argument on the subject. In the first place I do not believe that you find pyorrhea in the mouths of children, at least, I never have. You may find that the food habit has led to systemic derangement, and by systemic treatment only can we cure pyorrhea. I do not wish to stand before this association and say that I cure every case of pyorrhea; at least, I have not lived long enough to find out whether they are cured or not. It is all right to modify our food, and it should be modified. It is a fact that our teeth are not used to the extent they ought to be used, but you will never find pyorrhea in the mouths of children, and you will never cure a case of pyorrhea through the medium of food. There is only one proper method of curing the system. If we get any results from a change of diet we simply get it through the curing of the system. It is not that we have got to put off eating certain foods or working the teeth so that more force may be brought to bear upon them, it is simply that it has worked upon the system and produced a cure.

My reason for bringing out this paper was because I could not find anything in our textbooks that we have been led to purchase and study that would help us out in the treatment of this disease. I have felt for a long time that it was necessary to find something by which we could reach the disease through the system, and the most convenient medium is the use of homeopathic remedies, and I have used them in those particular lines with success equal to anyone I know of. I would look the remedies over and compare them, because in the treatment through homeopathic remedies you will find it requires fine discrimination. You have got to differentiate in your remedies; you have got to prescribe closer; you have got to make a center shot if you want to get a good result. You cannot combine a whole lot, and you may not strike it the first time, but I think by that method you will get results in the treatment of pyorrhea, and by that method only. I do not think that any mechanical treatment is efficient. The system must be cleansed and then give the treatment required and our disease is gone.

Dr. J. M. Walls, of St. Paul, read a paper on "Root Fillings—the Preliminary Treatment."

DISCUSSION.

Dr. C. A. **Van Duzee**: The doctor said I had a few minutes to look through the paper. It is a paper that covers a field so full of thought that it is almost impossible to touch upon the title.

I agree with Dr. Walls in the main; I want to emphasize and modify in the particulars. I want to warn any of the younger members of the society against placing too much faith in mumifying the living tissue in the mouth for any purpose. The use of alcohol in all this work, I think, should be emphasized. I do not think we have an agent as valuable as alcohol. Personally, in molars and other teeth I want to crown immediately. I prefer oil of cassia as an oil dressing. It is well to remember that it will absolutely ruin an incisor or bicuspid, if it was intended to retain the tooth for any length of time, because it will turn it dark brown. If you are going to cut off a tooth—an incisor or bicuspid—I think the cassia is preferable to anything I have ever used to dress a root with.

There is a point in the paper that appeals to me, and I have not heard it spoken of very long, and I do not remember ever having seen anything written on the subject, and that is in regard to the healing of the tissue at the apex of the root. It is my own custom to let the tooth rest under trial treatment until I am satisfied that the soft tissues have taken on a complete new formation, and I think it is very unwise to interfere with them during that time, or to attempt anything in the way of a permanent filling previous to that time. I cannot say too much against the use of carbolic acid. I have not had carbolic acid in my office for ten years in any form, except in the preparation called campho-phenique. I do not expect to use it, and I do not see that we are called upon to have it. The campho-phenique is peculiar in one respect: It will not absorb moisture, it will not be displaced by the fluids of the mouth, and for that reason in cases that require an application to remain a considerable length of time I believe it is one of the best agents we have.

The doctor speaks of the exudation through the walls of the root, or through the foramina, and the breaking down of that tissue formation by deleterious matter. If the root is flooded with campho-phenique and a plug inserted in the opening it will prevent anything of that sort, otherwise the drainage from that locality is apt to find its way in the cavity if allowed to remain any length of time.

I do not believe in the enlargement of root canals, and in speaking of root canals I want to be understood as referring only to the lower two-thirds of the canal, the apical two-thirds. I believe the pulp chamber is a distinct cavity of itself, and the line to be drawn between the root canal and the pulp chamber would probably be placed about the juncture of the lower and upper third of the root, speaking of a lower tooth. I do think in the majority of cases we find a deposit of secondary dentine greater or less at the point where the root leaves the body of the tooth, forming a constriction in the canal which it is very difficult to work through, and I think it is a good practice to remove it and reduce the canal to the shape of a funnel, but I do not believe in permitting a drill of any kind to enter into the canal in its apical two-thirds, for the reason that you want a cone shaped cavity, and nature has provided for that more perfectly than we can with instruments, and there are a great many dangers that can be avoided by keeping drills out of that portion of the root. After obtaining free access to the cavity of the root canal and removing the accumulation nearest the crown, I find nothing gives me so much satisfaction as sulphuric acid treatment; and to the younger men I want to utter a word of caution, and that is, to cover up your patient with a good, heavy towel, and be careful how you use the acid. With proper precaution it will give you the best results. I always use a fifty per cent solution of acid in the tooth if intending to leave it to a future sitting, and on opening the cavity the walls of the pulp chamber are found to be bleached nice and white.

As Dr. Walls said, it does not matter much what you fill the root with after the preliminary steps have been accomplished. It has been a source of a great deal of satisfaction to me that Dr. Dickinson, of the University, has placed upon the market an oxide which I have used something like nine years with a great deal of pleasure. Chloro-percha in my hands proved disappointing. It was either too stiff or too fluid, and I had a great deal of trouble in keeping it in the proper condition; but the paste is always ready and of itself is an agent that accomplishes more or less as an antiseptic and disinfectant, and if you carry a few microbes accidentally into the canal at the last moment it will control that feature.

I do not believe in cement; I believe it is wrong to put it into the canal. Once in and set it is absolutely impossible to go through it, and I have often saved teeth that required treatment after the roots had been actually filled. Cotton has no place for a root filling except for a temporary purpose. I like wire in some canals; I think it is the best thing I can use, but I prefer copper wire. I place copper wire in the canal, being very careful to fit it accurately and see that the point penetrates beneath the canal. The copper is acted upon by the moisture which is always present, and I believe it has a therapeutic value. I prefer something soft in the pulp chamber, and I use an ordinary tempered gutta-percha filling. I prefer to fill the pulp chamber in that way, and then if I must have support for my filling I place cement or amalgam over that. You can use a large wad of gutta-percha or a large wad of anything soft like that, but I have never been troubled with bleaching.

That is about all I was able to dig out from my hasty examination of the paper.

Dr. C. H. Stearns: I do not know that I have anything in particular to say on this subject, as I had no opportunity of seeing the paper, and I had to get what I could while it was being read. One thing I wish to say regarding it, it shows a vast amount of work. The doctor has been putting in very good time with a great deal of advantage to himself as well as to others. There are some points on which I disagree with him, that is, on general principles. As many of you know, this is a subject that I have been interested in for a good many years. Probably about fifteen years ago I began writing on this subject for the society meetings, and I have not as yet seen cause to change my opinion from the general principles I laid down then.

The first comment I want to make is this: Avoid treatment as far as possible; the less treatment the better in all cases. So far as the use of medicaments is concerned outside of antiseptics, if you have got a canal that is in septic condition you have got to cleanse it, but the one point it all depends on is whether you fill the apical foramina. If you have got that filled perfectly your operation is a success, if not it is a failure. Of course, in a good many cases they can go a long time after without being troubled even if not filled, but as a rule you are bound to have trouble sooner or later. But so far as any other treatment than this is concerned I find I am a great deal better off without it. In my practice I remove the pulp surgically in nearly every case, and I fill the canal permanently at the same sitting. I would a great deal rather take my chances on a filling put in of that kind than one put in the next day or a week later. There is nothing against putting it in at that time, and there are a hundred things against waiting.

The President: What do you use to anesthetize the pulp when you remove it?

Dr. C. H. Stearns: Different things; it depends on the case. Cataphoresis, topical applications, syringe, any way that is best adapted to the case in hand. I have no hard and fast rules for anything. I use the method that in my estimation is best fitted to the case.

Dr. Dadmun: I feel very much interested in Dr. Wall's paper. The knowledge he has given us here on the sandarac combined with the gutta-percha is something new to me, and I think we are very deficient in its work. I have always used gutta-percha as a rule, and I want to ask Dr. Walls if he has ever used any root filling that could be removed in case after trouble should occur? We often have a case where we would give anything if we could get to the end of the root again. I have tried several things of that nature, but I have never found anything that would be a suitable filling that could be easily removed. I would like to ask Dr. Walls whether he has ever experimented along that line?

Dr. R. L. **Guy Huntley** (of Ia. Soc.): I have been benefited considerably by the reading of this paper. The experience of the doctor has been much the same as mine, and I coincide with him so fully that I cannot say a great deal in regard to his paper. I think there is a happy medium in medication. I think in some things, perhaps, there is overmedication, but there always has to be a sufficient medication. The most important element, I think, in the treatment of root canals, is absolute dryness. I think if there was any one thing that I would insist upon more than any other, it would be absolute dryness of the root before treatment. I have lately been dabbling a little bit in paste products, mummifying medicaments, but so far I have not been much impressed with the results. I have a few cases that I am keeping track of, but I am afraid we will still have to use gutta-percha as we have before.

Dr. **Williams**: I have been very much interested in the discussion which I have heard on the paper and in the paper itself, and my views coincide almost exactly with those of the author. There is one thing that I have used, and which is very efficient in the preparation of the root canal, and that is the application of heat with the Evans' root drier. It is not a new thing, but I find I can fill with greater ease by the application of heat in the preparation of the root than by any medicine. It is one of nature's own remedies and one of the grandest disinfectants known. I have also used formaline in three different cases for mummifying purposes. One of them was a failure; in the other two I do not know how the root turned out, but it was enough to teach me that the older methods are probably the surest.

I was very much pleased with the remarks of the two last gentlemen in regard to dryness of the cavity. It has been my practice of late to use an electric drier. I use the Browning electric drier, which is composed of silver wire around a copper heating core, which I have used for the last ten years, followed with gutta-percha point, nine to eleven, a very fine point, and I must say I have had happy success. I have had but very few failures in root filling, and the failures I have had have been the results of medication rather than in failing to have the root clean. I only wished to mention this point because I have had such excellent success.

Dr. J. W. Penberthy: I do not like to sit here and not hear anybody say a word for my pet, although Dr. Van Duzee has tried to throw it down awful hard. I think the thing for us to use is that which we can use the best, that from which we get the best results. I will say that I am not an expert in the use of gutta-percha; I have not been a success in the use of paraffine, but I think I have been very successful in the use of salol. I have resorted to other means, other materials for filling the root canals, but as a rule nearly every canal I fill I fill with salol. I desire to obtain this result when filling with it, and that is to get an expression from my patient that I have reached the goal, and that the canal is by that means filled. I am very glad to have heard the wire method mentioned, for I think in some cases where we have a very fine canal that it is doubtful whether we could get anything into it except this wire. I fully agreed with the doctor regarding medication. As I said before, I do not believe in overmedication. There is too frequently a resort to things that are carried to such an extent that we have forgotten what has already been in our grasp. The paper was an excellent one and very instructive.

Dr. C. W. Jones: In regard to filling with gutta-percha cones, on drying a root canal I generally take a large ball syringe, fill it with warm air and dry the root canal. That removes more moisture than can be done by any other method. I prepare the points in the apex of the root, drying the canal with the warm air, driving the warm air in it to get the tooth heated, take a cone of gutta-percha, dip in eucalyptol and press it up in the canal.

I wish also to say a word on antiseptics and medicaments. I saw an article published in the journals a few months ago giving a series of experiments with the essential oils, and which showed that oil of cloves was a very powerful antiseptic, more powerful than eucalyptol, therefore I think it is a very beautiful canal dressing. I forget the time the article was written, but if the members will look over their journals they will find it. It is in the REVIEW or the *Cosmos*, and is a very instructive article. I put more confidence in oil of cloves than in eucalyptol as an antiseptic.

Dr. J. M. WALLS (essayist): Dr. Van Duzee had to coincide with me more, I fear, than he might have done had he been given a longer time to collect his thoughts.

The doctor spoke of the use of oil of cassia. This, I think, is a valuable agent; but some years ago I came to the conclusion that it was an irritant to soft tissues and occasionally produced irritation when used as a root canal dressing. Consequently, in ordinary cases, I almost abandoned its use, and when I did use it, generally diluted with some other antiseptic. About two years ago, while in conversation with Dr. G. F. Andrews, he expressed his belief in the irritability of cassia. I had never heard another expression of this opinion until the appearance last January of Dr. Peck's article, in which I was much interested, and I was pleased to hear it mentioned by one of the gentlemen this morning.

Regarding the enlargement of root canals, Dr. Van Duzee says he does not believe in their enlargement beyond a short distance. It seems to me it is a necessity in order to thoroughly fill, to enlarge a great many, and I believe the majority of canals. Of course, a great deal of care must be exercised in doing this.

We have all had experience in removing from roots fillings that were found to pass but about two-thirds the length of the canal into it, when the dentist who previously filled the roots thought it had been done thoroughly. I think the trouble in many of these cases is a failure to enlarge the canals sufficiently, and another thing is, operators are sometimes too anxious to stop at the first constriction, hoping it may be the apex of the root.

I think, however, the doctor had reference to enlarging the canals with drills, for he said in his discourse that he used sulphuric acid, which, with a proper cleansing of the canal afterward, is bound to cause an enlargement of its circumference.

Dr. Dickinson's preparation I have used for some time in special cases and frequently in deciduous teeth.

Copper wire I think would be of value as indicated, but personally I should prefer gold

Dr. Stearns, it seems to me, touched upon a point of considerable interest, that is, filling the root immediately after taking out the live pulp. The blood normally is an antiseptic, and therefore the canal is aseptic when the pulp is first taken out. My objection to this method has been the difficulty in checking hemorrhage.

Dr. Stearns says that by reversing the current after using cataphoresis the hemorrhage will stop immediately. I thank him for the suggestion.

Dr. Dadmun asked if I had experimented with soft fillings. I have not, excepting wax; the only materials used have been those you see in the roots presented for your examination.

It would be very desirable to get a root filling that would be reliable, and that could be readily removed when desired. Gutta-percha can always be dissolved out with chloroform. It is sometimes tedious, but by working the gutta-percha with a stiff broach, the cavity being kept flooded with chloroform, the result desired may be attained. It is necessary in working with the upper teeth to tip the chair well back and lower the head, raising the chin.

INSTITUTE OF DENTAL PEDAGOGY.

The seventh annual meeting of the *National School of Dental Technics* convened at the Continental Hotel, Philadelphia, December 27, 1899, with about seventy-five delegates in attendance, representing over twenty of the thirty-three membership colleges.

It was the banner meeting of the organization; two more colleges made application for membership; many valuable papers were read, and much business of considerable importance to the profession in general and those interested in teaching particularly, was transacted.

The name of the organization was changed to the "Institute of Dental Pedagogy" in order to be more comprehensive and to cover the broader field of usefulness which has now become its province.

A committee consisting of T. W. Brophy, W. H. Whitslar and H. J. Goslee was appointed to arrange for an exhibit of the technic work of students as taught in the American colleges, at the International Dental Congress in Paris this year.

The following colleges had duly accredited representatives in attendance: College of Dentistry, University of Minnesota; Dental Department Vanderbilt University, Nashville, Tenn.; Louisville College of Dentistry; Royal College of Dental Surgeons, Toronto, Can.; Chicago College of Dental Surgery; Dental Department Western Reserve University, Cleveland, Ohio; Dental Department University of Michigan; Ohio College Dental Surgery, Cincinnati; Dental Department University of California; Indiana Dental College, Indianapolis; Dental Department University of Buffalo; Dental Department University of Pennsylvania; Baltimore College of Dental Surgery; Philadelphia Dental College; Pennsylvania College of Dental Surgery; Dental Department Ohio Medical University, Columbus; Pittsburg Dental College; New York College of Dentistry; Dental Department Northwestern University, Chicago; Dental Department University of Omaha.

The convention was in session three days, at the close of which the following officers were elected for the ensuing year: President, H. P. Carlton, University of California; Vice-President, Geo. E. Hunt, Indiana Dental College, Indianapolis; Secretary-Treasurer, H. J. Goslee, Chicago College of Dental Surgery; Executive Committee, H. W. Morgan, Nashville, Tenn., Chairman; D. M. Cattell, Chicago, and W. Earl Wilmott, Toronto, Canada; Master of Exhibits, Geo. H. Wilson, Cleveland.

Nashville, Tenn., was selected as the next place of meeting.

THE DENTAL REVIEW.

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EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

PRESS OF MATTER.

We must ask the indulgence of contributors for a month or two to catch up on deferred matter now in our hands for publication. The papers read before societies have accumulated, with the interesting discussions, until they are stacked high on our desk, but very soon most of them will see the light of day in these columns.

ARMY AND NAVY.

Now is the time to write to senators and representatives in congress asking for their active efforts in behalf of the dental surgeons' bill which was published last month. If every one who reads these lines would only write one letter or have one personal interview it would do a vast deal for the bill. Write at once to *your* representative or send in a petition.

THE NATIONAL DENTAL ASSOCIATION.

By vote of the association at Niagara Falls last August the date of the next meeting was fixed for June 26, 1900. At that time the writer, on behalf of the International Dental Congress committee, had asked to have the meeting fixed two weeks later, or on July 10.

Members of the profession west of Pittsburg, Buffalo and Atlanta find it too early for their usual vacation to leave in June as early as the 23d or 24th, and those residing further west and south will find it impossible to get away so early. Again, those who wish to go to Paris to attend the medical congress and the dental congress think it is too early for them to start to Europe.

If the members of the executive committee can only resolve to hold the meeting July 10 or 17 many who would like to go to the East for a vacation, and others desiring to go to Europe, will be accommodated. The medical congress will meet in Paris August 2, and the dental congress on August 8, so that any one leaving New York, Boston or Philadelphia July 19, 21, 23, 24 or 25, will reach Paris in time to participate in the congresses. July 10, at Old Point Comfort, will probably suit a greater number than any other date, as that will enable any one to leave Saturday, July 14, from New York, Boston or Philadelphia, or Tuesday, July 17, or Wednesday, July 18. There are steamers sailing regularly on Saturdays, Tuesdays, Wednesdays and Thursdays. There are extra sailings on other days. Will the executive committee take into consideration this matter so that our national meeting will be numerically and otherwise a success?

DOMESTIC CORRESPONDENCE.

Letter from New York.

To the Editor of Dental Review.

Dear Sir:—The First District Dental Society of New York State held its regular meeting Tuesday evening, December 12, 1899, at the Academy of Medicine, with Dr. W. C. Deane presiding.

The regular business of the evening was expedited so as to reach the paper of the evening, on "The Dental Educational Problem," by Dr. Charles S. Butler, of Buffalo, N. Y. Dr. Butler gained much renown as the Secretary of our State society, which position he filled until the last year, when the duties went over to Dr. White, up the State, possibly because Dr. Butler refused to serve the society longer in that capacity. The society undoubtedly lost one of the best secretaries of any dental organization. It would seem now as though Dr. Butler might have advanced the interests of the profession more, had he relinquished the secretaryship some time ago, for his essay of December 12 showed unusual ability as a thinker and writer. His style and ease of delivery were particularly pleasing, inducing a sense of quietude of mind not frequently felt.

Possibly it was because he opened his remarks in a complimentary, pleasing way by upholding the dental educational institutions of the past in their struggles, which were natural, and all went seemingly well until the desire on part of medical colleges to add dental departments changed the aspect of things somewhat, and then strife began.

Dr. Butler advocates the four-year term for students with a previous good education so that they can enter upon studies with some degree of ability. He believes that what we need is not numbers but a better quality of students who have acquired mental qualities before entering manual training. The effort to fix a high school standard has failed utterly.

The character of students needed are those who have some ethical culture and surrounding, for these things are most always the fundamentals of good professionalism.

Laws have endeavored to regulate the practice of dentistry and now every State but one has restrictive measures for the regulation of same, but repressive legislature over schools and colleges is not needed.

Our illustrious friend and teacher in a dental school, Dr. L. Ashley Faught, of Philadelphia, was present and responded to the President's call to discuss the paper.

He said in part that he had found the "high school standard" an indefinite quantity.

Dr. Faught agreed with the essayist in the main, believing that the requirements were manual training as well as mental gymnastics.

Dr. Jarvie, who has been a dental examiner in this State for twenty-one years, followed in discussion, complimenting Dr. Butler by remarking that his paper showed most careful preparation, and was one of the ablest presented in some time. He thought Dr. Butler was rather pessimistic as to the present and the future, but he felt different. Since 1879 some entrance examination has been demanded, and he has noted that the status of men who came before the board of examiners during that time have improved, and believes that to-day those who come to enter the practice of dentistry are equal to those entering any other profession.

F. LeGrand Ames, President of our State society, came down from Albany to hear Dr. Butler's paper and to say a word. The paper appealed to him because it dealt with the teacher as well as the pupil.

Dr. Ames (like most all others of us) is anxious for professional advancement, and said that any movement toward the endowment of a college should be met with hearty support.

Dr. Wm. Carr, who, too, has been a dental examiner in New York State for years, said that the multiplicity of schools tended to lower the standard. He deplored the fact that dentistry was not regarded properly. We are not a trade or a handicraft, but specialists similar to those who treat the tract of the nose or throat.

Dr. Carr's remarks were well meaning and really were the keynote of the whole discussion.

Some remarks made by Dr. St. John Roosa, the eminent eye specialist, bearing upon this same thought, made before the Institute of Stomatology last Tuesday (January 2), were quite apropos to this subject. They will be found incorporated.

Dr. Carr said further that dental legislation has done much to improve the condition of things and that he does not agree with essayist on the point of *not* having dental school connected with a well equipped medical institution. Under such conditions better results will be attained.

There is only one—W. W. Walker—that can say the funny thing at the right moment. He with the heart in the right place. The logic which followed his outburst of mirth was that, they should not have business taught by one person and fumbled over by an incompetent assistant or demonstrator. The professor who professes to teach should get down on the floor and teach again in the practical way; and there will never be a perfect college until that is done.

Your professor teaches one principle and when the student gets down to the demonstrator he says, "Oh, he's not in it, just look at me."

Dr. Sanger, who has been professor of one of the departments in the New York Dental School for a few years, said that Dr. Butler took his breath away, by saying a good word for the colleges. That seemed to be the case with most all who heard Dr. Butler.

Dr. Sanger coupled "education" with some physical phenomenon in that it "traveled in waves, not straight lines." Strife between the colleges and selfishness prevented the just pride desired.

Dr. E. A. Bogue spoke of the establishment of the French school—governmental.

The requirements are three years' instruction in a school, followed by an examination by government officials from the ranks of the medical staff. Students there are now studying to answer questions propounded by medical men. The same condition exists in Austria. The result is apparent.

Dr. Hill, of Brooklyn Borough, said that he was the only outsider who was called upon who was not or had not been connected with some educational part of the profession.

He felt surprised to hear that law was a failure. Butler, where have you been living? Why, New York State laws have raised the standard all over the States!

The educational system is now under the control of the regents brought about by law. Where was it twenty years ago?

Dr. Butler closed the discussion of his paper by answering Dr. Hill first, by saying that law was a failure in a certain sense. It regulated conditions somewhat *after* conditions began to exist. The condition of things brings about legislation which evidences that something is wrong.

He said further that he believed men should be subjected to one year's technical schooling before entering a profession. An advisory school one may call it, where a young man could ascertain to some extent whether he was qualified to enter a given profession.

The attendance at this meeting of the First District Society was unusually large, which can be accounted for to some extent. A collation was announced to follow the meeting and as usual a goodly number came to hear Dr. Butler and to feast also socially subsequently as well as in fact.

The New York Odontological Society called its annual meeting at the New York Academy of Medicine on Tuesday evening, December 19, 1899. It being the annual, the election of officers, etc., transpired. Of course only the active membership were called together, and about twenty responded.

Dr. W. W. Walker was elected President; Dr. J. F. P. Hodson was elected Vice-President; Dr. John I. Hart was elected Recording Secretary; Dr. W. A. Woodward was elected Corresponding Secretary; Dr. F. C. Walker was elected Treasurer; Dr. Turner was elected Editor; Dr. J. Adams Bishop was elected Curator.

The retiring President, Dr. S. G. Perry, was complimented very highly on his efficiency, justness and general good qualities (for he *is* a good fellow if there was ever one) by Dr. Jarvie and others, which brought tears to the tender-hearted man whose high principles have endeared him to all.

A letter of resignation from the Odontological Society was read by the Secretary, which when the name of the signer was reached, startled us all—Dr. C. E. Francis. He gave as reasons his retirement from the practice of dentistry, and taking up residence in the adjoining State of Connecticut, and to advancing years. The resignation was accepted and then it was immediately moved to instate him as honorary member, which was done. The Odontological Society is one of our most ancient and honorable societies in the State, and Dr. Francis was one of its founders, I believe. He has remained with it through all its trials and prosperous times, and now that he finds it consistent to withdraw, it came as a shock to all.

The meeting adjourned, accepted the new President's invitation to visit the Lotus Club, where Dr. W. W. Walker made it very pleasant for us until after midnight, and he would have kept us longer.

On Tuesday, January 16, 1900, the 32d anniversary of the above society will take place at the Academy of Medicine.

At the afternoon session, commencing at 2 o'clock, Joseph Head, D. D. S., of Philadelphia, will give a clinic, inserting a porcelain inlay, using an entirely new cement. Immediately after the clinic Dr. Head will read a paper, subject, "Shadow Problems as Presented by Porcelain Inlays."

The evening session is called for 8 o'clock. Paper by A. W. Harlan, M. D., D. D. S., of Chicago, subject, "A Review of Recent Literature on the Loose tooth or Pyorrhoea Problem."

The New York Institute of Stomatology began the work of the year with its January meeting on the second inst. at the office of Dr. Louis C. LeRoy, 6 Lexington avenue. The attendance was very good, and the meeting a seriously interesting one.

Dr. E. A. Bogue, the President, presided for the first time this winter, as he had just returned from France. Among the distinguished gentlemen present we noted Dr. St. John Roosa and Dr. Leonard Weber, representing the Physicians of New York, and Dr. Carleton, of San Francisco; Dr. Weeks, of Minneapolis, and Dr. Thos. G. Cowardin, of London, England, representing the dentists. Also J. Cleveland Cady, President New York Skin and Cancer Hospital.

In the absence of Dr. J. Morgan Howe, his contribution on his experience with nitrate of silver as a prevention of decay was read by the Secretary, Dr. F. Milton Smith. Dr. S. H. McNaughton then read a résumé of his experience with the nitrate. The matter was then discussed by Drs. Kimball, Dawbarn, Elliott, LeRoy and others.

Dr. McNaughton dissolves crystals of nitrate silver in water in a bottle, and when desiring to use, dips cotton therein and applies to the point indicated. He finds it very satisfactory as an application *to* roots before crowning. Nothing particularly new was developed in the reading of the papers.

Dr. Kimball incidentally remarked that the bacillus by which artificial caries could be produced had been isolated. Dr. Dawbarn spoke of certain forms of silver which were preferable to the nitrate because they do not stain, as iodide of silver, citrate or albuminate of silver, having nearly the same antiseptic properties as the nitrate.

Dr. St. George Elliott spoke of the "blue-black men" before the days of mercury, whose hue was due to the use of nitrate of silver. He also referred to the use of cataphoresis to introduce nitrate of silver into root canals as a sterilizing agent *a la Bethel,* but did not say what might happen should the nitrate be carried beyond the apical foramen, nor did he state how one could know *when* he had gone far enough.

Dr. LeRoy spoke of his preference for chloride of zinc in sensitive places because of its freedom from stain. The essayist of the evening, Dr. Andrew J. Flanagan, of Springfield, Mass., was then introduced. The title of his paper was "Dentistry Is to the Eye That Sees It, As to That Eye It Seems to Be."

Rather a peculiar title, but the discussion it provoked led up to much that was intensely interesting. Dr. Flanagan covered a wide field, alluding to the needs of a higher education, to the connection between medicine and dentistry, to the needs of the poorer classes in regard to their teeth, and how to assist them, to the need of dentists in the army and navy, etc., etc.

Dr. St. George Elliott, opening the discussion referring to the charitable part of the paper, spoke at much length of what is done in that line in England, and described his want of encouragement in his endeavors in this country to enlist the sympathies of certain hospitals in this kind of work. Dr. Leonard Weber and Dr. St. John Roosa both talked along the lines of dentists being part and parcel of the great healing fraternity, and advising the dentist to "come in with the physician." Get the degree of M. D.—you will not know too much then. Come, we need you very much among us.

He said that the teeth of people in hospitals are absolutely in a condition conducive to ill health. Dr. Roosa applied one of the best arguments I have ever heard why a dentist should emanate from an M. D. in the remark: There is no reason why a man should be outside the practice of medicine and be a dentist or outside the practice of medicine and be a surgeon. Dr. Weber in his statements showed a lack of knowledge of the earlier struggles of the dentists, and was set right later by Dr. Bogue, who gave some ancient history anent the request of the gentlemen in Baltimore who organized the first dental college to be recognized by the M. D.'s, which request we all know was spurned.

Neither did Dr. Weber seem aware that any dentist or dental organization had ever asked for representation in any medical institution.

Mr. J. C. Cady, President New York Skin and Cancer Hospital, made some very acceptable remarks. Speaking of proficiency as attained by dentists he repeated the story of a fine fancy skater who, being asked how long it required for him to learn such fine skating, replied that he did not know exactly, but there *were a great many sittings.* As showing the love of many, both dentists and physicians, for their profession, and the great amount of charitable work quietly done by them, he spoke of one Dr. Love of Montclair, N. J., whom he compared to Ian Maclaren's Dr. —— in the "Bonnie Briar Bush," relating this: When Dr. Watson (Ian Maclaren) was lecturing in Montclair and reading or repeating that portion relating especially to some of Dr. —— charities, all the audience saw in mind not Dr. ——, but Dr. Love, who had "gone to join the great majority" just as he had succeeded in bringing back from the border lands of death one of his loved patients, but a real case of charity.

Dr. Roosa, among other things, said the dentist did not charge enough, that he ought to make his bills larger; saying that the dentist deserved it, for the services are worth it.

Dr. Bogue, referring to that portion, spoke of some dentist of New York City, now deceased, who endeavored to charge $20 per hour and did so for a while, making money then, but ultimately losing his entire practice, and dying poor.

Dr. Palmer related the case of a physician (?) who sent his daughter to Philadelphia to have her dental work attended to at the Dental Infirmaries instead of sending her to a dentist in his own town *because* he could get it done without charge at the infirmary. Drs. Meeker, LeRoy and others took part in the discussion, which was finally closed by Dr. Flanagan.

The C. D. A. of N., N. J. did not hold a meeting in December, because Dr. Fillebrown, of Boston, could not be present, having met with an accident.

New Jersey, however, is always doing something. Between the resignation of the Board of Examiners or "Commission," as it is termed in New Jersey, from the National Board, and recent settlements between the Tooth Crown Co. and some Newark dentists, New Jersey is likely to be before the dental public for some time. You will hear more in our next on these subjects probably. Meanwhile we have in anticipation several annuals and reunions in dental societies and will try to keep you posted.

Sincerely,
The Boroughs.

Letter from Dr. R. Ottolengui.

New York, December 30, 1899.

To the Editor of The Dental Review.

Dear Sir:—I was somewhat surprised to note that, in your last issue, you voluntarily republished the letter which Dr. Head had printed in the *Cosmos*. I must ask you for space for a reply. In Dr. Head's letter I take exception to the following paragraph:

> The editor of the *Items of Interest* excuses his action by explaining that he made the change because he did not wish to advertise an employeé who had left the company which he represents. Such advertising zeal ordinarily does not interest professional men, but when this zeal perverts the accuracy of scientific papers it becomes dangerous.

Dr. Head is evidently one of that class of witnesses for whom the oath was framed, which compels that the truth, the whole truth and nothing but the truth should be told. There is nothing in the communications which have passed between Dr. Head and myself which authorizes the statement here made. Shortly after the appearance of the article, he wrote to me complaining of what he called a typographical error, declaring that he "distinctly did not mention the Consolidated Company, etc," to which I replied as follows:

Dr. Joseph Head,
Philadelphia, Pa.

My Dear Doctor:—Yours before me is somewhat of a surprise. In it you say, "I distinctly did not mention the Consolidated Company, etc."

The copy of your paper was typewritten, and in the typewritten original you called the porcelain by its proper name—consolidated porcelain. You were speaking of the experience that you had had with a certain material. You obtained it from the Consolidated Dental Mfg. Co., and it was their porcelain. Subsequently, you evidently decided to change your manuscript, and you scratched out the original reading, and inserted in pencil the name of Mr. Whitely.

In publishing I corrected this, just as I should have done had Mr. Whitely still been with the house, as it is not customary either to call things by a name by which they are not known in the open market, nor by the name of the employe of a house for which he works. For example, you would scarcely expect the *Cosmos* to publish an article relating to their teeth, in which you would call the teeth by the name of the man who had charge of their tooth factory; consequently, as the error was not typographical, I see no reason for publishing a correction. Very truly yours,

R. OTTOLENGUI.

It will be noted that I do not here "excuse my action by explaining that I made the change because I did not wish to advertise an employee who had left the company." I will admit, however, that I have elsewhere made the statement that I published Dr. Head's article in its original language because I was satisfied that the alteration had been made with the intent of procuring an advertisement in our scientific pages.

Very truly yours,

R. OTTOLENGUI.

LETTER FROM DR. MITCHELL.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir :—I have obtained the best results with quick setting amalgams by the use of the following method: Adjust rubber dam and prepare cavity according to the requirements of the case, and have all instruments ready to hand necessary for the completion of the filling; insert amalgam in convenient sized pieces, packing well, under decided pressure; when cavity is full, trim up, filling nicely to contour or shape with suitable plastic trimmers; smooth off with pledget of cotton rolled quite hard; then with suitably shaped burnishers used *warm*, *not hot*, nicely burnish all over; if this has been carefully done, the result will be almost surprising to those who have not tried this method of treating amalgam fillings. W. MITCHELL, D. D. S.

REVIEWS AND ABSTRACTS.

THIS SEEMS REASONABLE.

To the Teachers of the Dental Colleges in America: For years it has been the almost unrebuked custom of disaffected and uninformed members of the dental profession to attack our colleges for every fancied evil from which it is believed that dentistry suffers. Every phase of personal envy and malignity has been vented on the schools, in wanton ignorance or reckless disregard of the fact that the reputation of the profession itself is indissolubly connected with that of its educational institutions. Unmerited calumnies have been iterated and reiterated in dental societies and dental journals, until a considerable proportion of the profession has been led to believe that to accept a position as a professor in a dental college is at once to leave the ranks of honest men, and to become grasping, avaricious, sordid, indifferent to professional interests and solicitous only for self.

This defiling of their own nest on the part of certain dentists has gone on until the reputation of American dentistry has been debased to the lowest point in Europe. Formerly, when it represented not the tenth part of what it now does, dentists and dental students in great numbers flocked to American dental schools from abroad, and the American degree was anxiously sought. American dentists settled in all the principal cities of Europe, introduced American methods of practice, often secured the best clientele, and in a number of instances were appointed court dentists. The career of the famous Dr. Evans, of Paris, was but a more brilliant type of that of many American graduates. This naturally aroused the jealousy of foreign dentists, and for years foreign journals have caught up everything that has been published at home to the discredit of American schools, have circulated it widely and pointed it out as an evidence of our unworthiness, for as our professional status must be reflected in our colleges, all that is necessary to bring about the proscription of the one is to establish the worthlessness of the other. Especially has this been the case in England, where one never sees in the dental journals anything concerning American colleges, save quotations from the captious criticisms of disaffected and unpatriotic Americans.

This evil has been further intensified by the speeches and writings of American dentists who desire to be honest, but who have taken for granted the discreditable denunciations of others, and believed them without demanding the proofs. By giving currency to shameful rumors they have unwittingly degraded their profession and debased their own professional status. The National Association of Dental Faculties is striving earnestly to raise the tone of American dentistry at home and abroad, but it has been thwarted by the opposition of men from whom better things might have been anticipated. There are even editors of journals which depend upon professional support, who appear never to miss an opportunity to publish anything to the discredit of our educational institutions, but who never see anything to commend. Some injudicious teacher may in mistaken zeal to serve his college overstep the boundaries of professional propriety, but instead of extending to him that professional charity which it is the right of every man to receive until his motives and the circumstances of the case may become known, his fault is magnified and published to the world as another instance of the bad character of all our schools and teachers. The only excuse that can be offered for these aspersions of our professional reputation is that the editors in question know nothing of what is being done in our professional schools. They are either nongraduates themselves, or they took their brief college course when dental education was yet in its infancy, and they have evidently not kept pace with the onward march of events.

It is time that our schools and teachers begin to indicate the possession of some self-respect, and a desire to protect their good name by declining longer to support journals and supply houses whose organs are engaged in maligning our institutions of learning. This is the only way by which a stop can be put to these malicious attacks, and no dean of a college should hesitate to employ it. Swayed entirely by the mercantile spirit, and governed by mercantile interests, if these men will not respect our professional institutions they are not entitled to our patronage. No college man will object to honest and candid criticism, because we cannot always be the first to perceive our own defects, and are enabled to profit through having the imperfections of our educational system kindly pointed out.

But during the past year at least two of our dental journals have given editorial prominence to accusations, or what is worse, to covert insinuations, that our colleges are unworthy professional support, and that men who have done more to elevate their calling than their detractors can ever hope to accomplish have been animated only by the most sordid considerations. Not a word has been said in condemnation of the fraudulent schools that have been selling their diplomas abroad, but every bitter attack has been reserved for the colleges which are doing their utmost to bring about a better educational condition. Teachers with whose reputation our professional good name is inseparably connected have, by implication, been charged with the most miserable inefficiency, and their experience, in some instances that of more than a generation, has been utterly contemned by self-elected critics whose every written sentence proclaims their entire ignorance of everything educational. All teachers and schools have been classed together and charged with the most offensive advertising, and the testimony of the outcasts of dentistry has been accepted and published as sufficient proof of the unworthiness of men whose honor is untarnished in the minds of those who are without personal bias.

This professional throwing of mud must cease. Every self-respecting teacher should begin to resent the malicious and prejudiced disparagements that are instigated by anything save a desire to serve the profession of which these men are unworthy representatives, or are prompted by a reprehensible ignorance of what must inevitably be the effect of their unprofessional course of conduct. It is hoped that, recognizing this, our colleges will withdraw all support from those journals and supply houses that persist in misrepresenting our institutions of learning and debasing our professional reputation, until wiser editors are appointed, or those now in charge of those mercantile organs shall have made themselves better acquainted with our professional affairs.

MEMORANDA.

Dr. W. Girling, of Chicago, will tour in Europe after February 1.

Dr. Gordon White, of Nashville, Tenn., paid a visit to Chicago in December. Dr. White expects to attend the Paris Congress.

OFFICERS OF THE ODONTOGRAPHIC SOCIETY OF CHICAGO, 1900.

President, Dr. Thomas L. Gilmer; First Vice President, Dr. L. S. Tenney; Secretary, Dr. Frank H. Zinn, reëlected; Treasurer, Dr. George N. West, reëlected; Board of Directors, Dr. J. E. Nyman, Dr. George B. Perry and Dr.

A. B. Allen; Board of Censors, Dr. A. G. Johnson, Chairman, Dr. F. E. Roach and Dr. J. B. Dicus, reëlected. F. H. ZINN, *Secretary.*

Dr. L. J. Mitchell, of London, England, is visiting friends in Chicago. Dr. Mitchell formerly resided in Delaware, Ohio, but he forsook his native land in 1887, and has resided in London since that time.

Dr. W. G. Skidmore, formerly of Moline, Ill., is now one of the leading dentists of Manila, Philippine Islands. They will soon have a new law regulating the practice of dentistry in that far off country.

On account of the withdrawal of quite a number of steamships from the Atlantic service for transports of soldiers to South Africa it may not be possible to get quite the reduction in rates that have been expected for the Paris Exposition.

Dr. Garrett Newkirk has removed to the land of sunshine, Los Angeles, California, where he will take up practice. Dr. Newkirk has been a respected and honored resident of Chicago for twenty years, and we commend him to our brethren in California with best wishes for his future.

Dr. W. H. H. Thackston, of Farmville, Va., is dead. Dr. Thackston graduated in 1842 from the Baltimore College of Dental Surgery. Dr. Thackston was the leading dentist of the South for many years and held many places of honor and trust in the community where he lived. He was ex-president of the Southern Dental Association.

CEDAR RAPIDS DENTAL SOCIETY PROGRAM.

January, "A Neglected Field in Dentistry." T. A. Gormley, Mt. Vernon.
February, " Dental Medicines and their Uses." J. H. Calder.
March, "Antral Complications." H. L. Walker.
April, "Orthodontia." Prof. Brady, Iowa City.
May, Subject to be selected. F. P. Burchell, Marion.
June, "Nerve Cases and Complications." J. B. Pherrin, Central City.

E. EBI, *President.*
C. B. WHELPLEY, *Secretary.*
C. D. HOLLENBECK, *Treasurer.*

ODONTOLOGICAL SOCIETY OF ROCKFORD.

Program for 1899-1900 of the Odontological Society of Rockford, auxiliary to the Odontological Society of Chicago. Organized November 19, 1897. Dr. J. E. Harned, President; Dr. D. S. Brogunier, Secretary:

December 15, Dr. M. L. Hanaford, "Something About Root Canals," illustrated by lantern slides. Discussion opened by Dr. H. C. Gill and Dr. M. A. Banks.

January 19, Dr. D. S. Brogunier, "Operative Dentistry." Discussion opened by Dr. C. B. Helm and Dr. B. F. Ells.

February 16, Dr. M. R. Harned, "Cleanliness." Discussion opened by Dr. E. H. Allen and Dr. A. M. Harrison.

March 16, Dr. H. C. Gill, "The Duty of the Dentist to his Patient." Discussion opened by Dr. M. L. Hanaford and Dr. M. R. Harned.

April 20, Dr. B. F. Ells, "Orthodontia." Discussion opened by Dr. E. S. Tebbitts and Dr. J. L. Palmer.

May 18, Dr. F. Gill, "Plate Work." Discussion opened by Dr. Bryant Kerr and Dr. C. J. Sowle.

June 15, Dr. Charles J. Sowle, "Pyorrhea Alveolaris." Discussion opened by Dr. A. Kitchen and Dr. D. S. Brogunier.

October 19, Dr. Bryant Kerr, "Shock." Discussion opened by Dr. F. Gill and Dr. J. J. Reed.

November 16, Dr. J. E. Harned, "President's Address." Discussion general.

An esteemed correspondent says: I have a patient who has a tooth that upon the devitalization of the pulp turned a beautiful pink color. I have had great difficulty in bleaching, in fact have been unable tc do so satisfactorily. Have used a twenty-five per cent ethereal solution of pyrozone as usual. Will you suggest something that may help me out of the difficulty? M.

We answered as follows: Adjust the rubber dam, wash the outside and inside of the tooth with five per cent borax water three or four times, get the tooth dry, place a few pledgets of cotton inside the tooth, soaked in twenty-five per cent pyrozone, using wood to push them into the pulp cavity, and seal this with gutta-percha for forty-eight hours and repeat if necessary. Do not introduce any oil, alcohol, carbolic acid or water into the cavity.

What would your answer be? SMILAX.

TO THE DEAR OLD PEOPLE.—MARK TWAIN.

Our ivory teeth, confessing to the lust
Of masticating, once, now own disgust
Of clay plug'd cavities—full soon our snags
Are emptied, and our mouths are filled with dust.
Our gums forsake the teeth and tender grow,
And fat, like overripened figs—we know
The sign—the Riggs' disease is ours and we
Must list this sorrow, add another woe;

Footnote to the above is:

Private: If you don't know what Riggs' disease of the teeth is, the dentist will tell you. I've had it—and it is more than interesting.—*McClure's Magazine for January, 1900.*

CHICAGO DENTAL SOCIETY, 1900.

Program: November—"The Uses of the Storage Battery in a Dental Office," Mr. G. E. Lob. Discussion opened by Drs. J. E. Nyman and J. E. Keefe.

December—"The Removal of the Ganglion Gasserian in Neuralgia of the Fifth Nerve," Carl Beck, M. D.; "Operations for Cleft Palate and a New Urano-Staphylorrhaphy," Alexander Hugh Ferguson, M. D. Discussion opened by Drs. T. W. Brophy and T. L. Gilmer.

January—"Comparative Dental Anatomy: a Basic Principle of Orthodontia," Dr. J. W. McDowell. Discussion opened by Dr. C. S. Case. "The Avoiding of Gold Cusps in Crown and Bridge Work," Dr. B. J. Cigrand. Discussion opened by Dr. J. H. Prothero.

February—Symposium on the Treatment of Pulpless Teeth: "Treatment of Chronic and Acute Alveolar Abscess," Dr. A. W. Harlan; "The Management of Teeth Whose Pulps have been Dead for an Indefinite Time and Although Receiving no Attention have not Given Trouble," Dr. Elgin MaWhinney; "What Are the Best Disinfectants to Use in a Tooth with a Putrescent Pulp," Dr. A. H. Peck; "A Method of Filling Pulp Canals," Dr. C. P. Pruyn. Discussion opened by Drs. J. H. Woolley, T. L. Gilmer, F. B. Noyes.

March—"The Constitutional Effects of Amalgam Fillings and Red Vulcanite Plates Upon the Economy as Viewed by a Homeopathist," H. W. Pierson, M. D. Discussion opened by Drs. J. E. Hinkins, G. W. Cook, E. L. York, M. L. Rhein, of New York.

Annual Meeting: April—President's address, Dr. Garrett Newkirk; "Temperaments," Dr. Geo. B. Perry. Discussion opened by Drs. C. N. Johnson and Edmund Noyes.

May—Exhibition of new dental instruments and appliances, by Dr. L. S. Tenney; Exhibit of clinical cases. Members are invited to bring patients or models of extraordinary cases, and are expected to give history and treatment of such.

June—"Dental Jurisprudence," Mr. Elmer DeWitt Brothers. Discussion opened by Dr. Edmund Noyes. "Personal Care of the Mouth," Dr. J. W. Wassall. Discussion opened by Dr. J. G. Reid.

October—"The Relative Duties of the National Board of Dental Examiners and National Board of Dental Faculties," Dr. W. C. Barrett, of Buffalo. Discussion opened by Drs. J. N. Crouse and Theo. Menges.

November—"Bacteriology," Dr. G. W. Cook. Discussion opened by Dr. G. V. Black. Incidents of office practice.

DR. E. J. FINNEY.

In the death of Dr. E. J. Finney, Fox Lake loses one of its most noted men. Twenty years ago Dr. Finney was the leading dentist in Pittsburg, Pa. but having an inventive turn of mind he came out here and bought a small farm south of town where he settled down to experimenting with his schemes, undisturbed by professional cares or worry. He first conceived the idea of the dental engine or foot drill, which is now so important a factor in every dental office, and invented the first one ever seen. He also was the first to invent the trolley system of propelling street cars and holds the first patent on them, dated in 1871. This valuable patent he sold for a song. The first storage battery was made and patented by Dr. Finney and he sold that patent to a company for $90,000. Unfortunately, the company to whom he sold it failed soon after, and the $8,000 which he received as a first payment was all he ever got out of it, the successors to the company to whom he sold his patent managing to evade payment of the balance due in some manner. Dr. Finney also invented several other valuable patents, but had not the faculty of making much money out of them, and he died comparatively a poor man. He had one of the best original inventive minds of the age and with a better method of getting the business part of his business before the world, would have made an immense fortune. He was a quiet, reserved man and courted no familiarity with any one. He erected a beautiful and valuable house on his farm, the upper stories of which were used as his work shop, to which no one was admitted. He had an elegant outfit of tools and appliances for prosecuting his labors and had he lived would undoubtedly have astonished the world. He was at work, when he died, upon a scheme to raise water from deep wells on the siphon system, and he remarked to friends recently that he had about got it completed. As he carried everything in his head, the process by which he expected to do this work is probably lost to the world. He was about sixty years old. His remains were taken to Pittsburg to be cremated in accordance with his wishes.—*Milwaukee paper.*

THIRTEENTH INTERNATIONAL MEDICAL CONGRESS, PARIS, 2D TO 9TH OF AUGUST, 1900. SECTION OF STOMATOLOGY.

Mr. President:—We have the honor to announce that on the initiative of the Society of Stomatalogy, of Paris, and the medical society of the hospital dentists of the same city, a section of stomatology has been created in the International Medical Congress which will meet in Paris, on the occasion of the universal exhibition from the 2d to the 9th of August, 1900.

The committee of organization, of which you will find included, the list, and the constitution of its officers, invite your society to join us and to designate the members which will represent it at the section of stomatology.

Hoping that your society will in this way contribute to the advancement of medical sciences in general, and stomatology in particular, we pray you to let us know as soon as convenient, the names of your delegates and the titles of the communications and demonstrations which they may desire to make.

Believe us, Mr. President, yours most sincerely.

The board of the organizing committee,
Dr. PIETKIEWICZ, *President.*
Drs. CRUET and GAILLARD, *Vice Presidents.*
Dr. FERRIER, *Secretary-General.*

All communications referring to the congress should be addressed to the Secretary-General of the section, Dr. Ferrier, 39, rue Boissy-d'Anglas, Paris, or to the president of the national organizing board of the International Medical Congress of your country, Prof. Osler, Baltimore.

Members of the committee of organization.

Officers: President: Dr. Pietkiewicz, ex-president of the Society of Stomatology (1898), and of the medical society of the hospital dentist-hospital dentist. Examinator at the Faculty of Medicine, 79 Bd. Haussmann.

Vice President: Dr. Cruet, President of the Society of Stomatology (1899) hospital dentist, Examinator of the Faculty of Medicine. Ex-interne of the hospitals, 2 R. de la Paix.

Vice President: Dr. Gaillard, President of the medical society of the hospital dentist. Hospital dentist, Examinator at the Faculty of Medicine, 47 R. Blanche.

Secretary-General: Dr. Ferrier, Secretary-General of the Society of Stomatology, hospital dentist., Examinator at the Faculty of Medicine.

Doctors:

Beltrami, Hospital dentist of Marseille, ex-interne of the Marseille Hospital.

Chompret, Secretary of the Society of Stomatology, 182, R. de Rivoli.

Faré, Professor at the Medical School of Tours.

Faure, Professor agrégé of the Faculty of Medicine, Surgeon of the Paris Hospital.

Fleury, Professor at the Medical School of Rennes.

Gires, D. D. S., Univ. of Pennsylvania, 4 R. de Rome.

Hugenschmidt, M. D., D. D. S., Univ. of Pennsylvania, 23, boulev. Malesherbes.

Malassez, Professor at the Collège de France.

Martin (Claude), Laureat of the Institute member of the Society of Stomatology, Lyons.

Redier, Professor at the Faculty of Medicine of Lille.

Rodier, Tresurer of the Society of Stomatology, hospital dentist, Examinator at the Faculty of Medicine, 73, Boulev. Haussmann.

Rosenthal, Member of the Society of Stomatology, Nancy.

Sebileau, Professor agrégé at the Faculty of Medicine, Surgeon of the Hospitals.

Tellier (Julien), ex-interne of the Lyons Hospitals.

Thomas, Hospital dentist, Examinator at the Faculty of Medicine, ex-interne of the hospitals, 2, R. Cambacérès.

Preliminary program of the Section of Stomatology:

On the second of August, 1900, immediately after the meeting of opening of the congress, the Section of Stomatology will meet at the Grand Amphithéàtre de l'Assistance publique, avenue Victoria and there proceed to the election of its officers.

The work of the section will be divided into:

A. Practical demonstrations relating to the practice of dentistry.

These demonstrations will take place every morning from 9 to 11, in the hospital dental service which will be later on designated.

B. Reports on the questions proposed by the committee.

C. Communications on subjects chosen by each author.

The questions proposed by the committee and given to five competent members are the following:

I. On therapeutical interferences in anomalies of position and direction of the teeth.

II. Immediate prosthetic appliances in the surgery of the face.

III. On the influence of affections of the mouth and teeth on the other organs or systems of the body.

IV. On the choice of antiseptics in the treatment of dental caries.

V. On the treatment of pyorrhea alveolaris.

Reports and communications will be the subject of immediate discussion. Each speaker will have to place into the hands of one of the secretaries, a written note of the remarks which have been made by him during the course of the discussion.

Members who are desirous to make practical demonstrations, will please inform the Secretary-General of the Organizing Committee of the section so that he may be able to arrange and give them full satisfaction.

All communications must also be announced by a short résumé.

Abstract from the general regulations of the International Medical Congress:

Art. 1. The Thirteenth International Medical Congress will begin in Paris on the second of August, 1900, and will end the ninth of the same month. Its object is exclusively scientific.

Art. 2. Will be members of the congress:

1st. Doctors of medicine who will apply for it.

2d. Scientific men who will be presented by the French Executive Committee or by their Foreign National Committee.

Art. 3. Each member of congress will receive his card of admission after having paid the sum of twenty-five francs to the treasurer-general of the congress. This card will be necessary to profit by the advantages reserved for members of the congress. The Foreign Committee can receive the applications of their countrymen. They transmit the account of the fee, to the French secretary-general who will immediately send them admission cards for corresponding members.

Art. 4. When sending the amount of the admission fee to the treasurer, members of the congress will please write very clearly their name, titles and address, and join their visiting card.

Art. 5. Beside all other advantages, each member of congress will have the right to a résumé of the works of the congress and to a printed copy of the works of the section to which he belongs.

Art. 9. Two general meetings will take place, one on the opening day, the other during the course of the session.

Art. 10. On the opening day, at the first general meeting there will be proceeded to the nomination of the honorary presidents and secretaries of each section.

Art. 11. The general meetings will be reserved to the usual speeches and elections. Only members who have been designated and invited by the organizing executive committee will be able to deliver speeches.

Art. 14. The speeches delivered at the general meeting and the reports presented at the sections, will be published in the proceedings of the congress; for the different communications and discussions, the executive committee reserves for itself the right of examination. The time reserved for each communication cannot exceed fifteen minutes, and the members taking part in the discussion will only be allowed five minutes each.

Art. 15. The written text of the reports, communications and discussions will have to be handed to the secretary of the section after each meeting.

Art. 16. The French language is the official language of the congress for all international relations. At the general meetings as well as in the sections the German, English and French can be employed.

Art. 17. All questions relating to the scientific work of the sections must be submitted and addressed to the president of the committee of the section interested. For all that concerns the organization and function of the congress one must address the secretary-general of the congress.

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

THE STORAGE BATTERY IN THE DENTAL OFFICE.*

BY G. E. LOB, M. E., CHICAGO, ILL.

The storage battery! A doubting smile will cross a good many dentists' faces when they hear any one advocating the use of such cells after the disappointment it has caused to many of them. Leaking jars, burned carpets, broken plates and lack of current just at the instant when it is mostly needed, have at times exasperated even the best natured operator and made him go back to his old foot engine, because it is always ready for work and will not give out at the most inopportune moment. Nevertheless, since electricity has become such an important factor in the dental office and its use being bound to spread more and more, so that even the practitioner in the small country town, where no light or power circuit is available, wants to use it, the storage battery should deserve some attention, especially since its form has been improved and through better knowledge ways have been devised to simplify its handling.

Naturally, men handling electric machines and apparatus should want to understand the construction of the different apparatus and the principles of their working—the "how and why." Having this knowledge, success depends upon watching and doing, or, more simply, "know how" and "do it."

Therefore, a brief description of the construction of the storage cell, or accumulator, and the principle upon which it works, will be in order. Electric cells, or when combined in any number so as to form a single source called electric batteries, are divided in two great classes:

I. Primary batteries.

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*Read before the Chicago Dental Society.

II. Secondary, or storage batteries.

Primary batteries are generators of electricity through the chemical action which takes place between certain different substances when brought into contact with each other, and independently from any outside electric current. To make this plainer, take the simplest form of a primary cell, a glass beaker filled with water, to which has been added a certain quantity of sulphuric acid, into which a strip of copper and one of zinc has been set, and connect these two metal strips by a copper wire. Immediately a strong chemical action will take place, showing an electric current flowing from the copper strip to the zinc through the conducting wire. The chemical action is as follows: The water is decomposed into hydrogen and oxygen. The hydrogen collecting on the surface of the copper and the oxygen combining with the zinc, forming oxide of zinc, which then combines with the sulphuric acid, forming sulphate of zinc. The principal seat of chemical reaction is at the surface of the zinc, which is consumed by oxidation, while the copper acts as a conductor and is not consumed. Hence, since electric movement is from higher to lower potential, and the same law applies to the energy of chemical reaction, in common with other forms of physical energy, and since the electrical energy of the cell is found to be strictly proportionate to its chemical reaction, it is assumed that the electric current originates at the surface of the zinc and flows through the fluid to the copper.

In the absence of external connection between the metal strips it is evident that the difference of electric potential would immediately become equalized and the current cease, but when they are connected by a conductor the current finds an outlet through the copper and flows back to the zinc through the external circuit ; chemical action is thus sustained and the current becomes continuous. The law of the conservation of energy requires the expenditure of energy in one form as a condition of the production of the same amount in another form. Hence as chemical energy is the only energy expended in the battery the natural conclusion is that it is the source of the electric energy or current generated.

Secondary or storage batteries are not generators of electricity itself, but, as their name indicates, only receptacles of electric energy, which is carried to them from an outside generator and stored in the cells in the same way as we store up solids or liquids in cans or bottles. Thus electricity is stored in a manner which is impossible with any other power. While stored, the energy is dormant, and can be retained for long periods with very little loss.

A storage cell consists of three principal parts—the plates, the electrolyte or liquid and the containing jar or box. The plates are divided into two kinds, positive and negative, and a set or group of these is commonly known as an element. The element is placed in a containing jar or box, which is then filled with a solution or electrolyte. The storage of energy in electric accumulators is accomplished by means of chemical action, produced in this case by the passage of an electric current through the element and electrolyte. The lead plates which form the element must be so constructed as to present a large surface upon which the chemical action may take place, as the amount of energy which can be stored in a cell depends upon the capability of the plates to take up the chemical action. This is termed the capacity of a cell.

The positive plates consist of lead upon which a coating or covering of peroxide of lead has been formed, while the negative plate is pure lead, the surface of which is of porous or spongy formation. The peroxide of lead and the spongy lead, respectively are the portions of the plates which are subjected to the chemical action, and are consequently called the active material. The electrolyte used with all storage batteries is sulphuric acid diluted with water in the proportion of one part of acid to from five to ten parts of water, according to the type of cell.

The positive and negative plates of each cell are arranged alternately in a group, all the plates of like denomination being connected together in multiple. Insulating pieces or separators are provided to keep the plates apart, so that when they are connected respectively to the positive and negative poles of a source of electricity, the current can only pass from one to the other by flowing through the electrolyte.

As to the chemical reaction that takes place in a storage cell many different theories have been advanced, which would be too long to enumerate here. Joseph Appleton, in his "Storage Battery Engineering Practice" explains it in the most concise and simple form by saying: "The chemical condition of the plates and electrolyte differs when charged and discharged. When the cell is fully charged the positive plates have a coating of peroxide of lead, the negative being porous or spongy lead as described before, and the electrolyte is of its full strength or specific gravity. During discharge, that is when the positive and negative poles of a cell are connected through an external circuit, an E. M. F. is set up in the cell, a current flowing into the circuit from the positive plate.

The chemical action which takes place during discharge is as follows: The sulphur radical in the electrolyte enters into combination with the active material on both plates forming sulphate of lead, the specific gravity of the electrolyte being correspondingly reduced. When all the active material has been acted upon in this manner the cell is discharged, for an equilibrium has been created between the two plates and the electromotive force has fallen to zero.

When a cell is being charged the chemical action is reversed. The current enters the cell at the positive plate, passing through the electrolyte to the negative. The passage of the current through the electrolyte decomposes it, oxygen and hydrogen gas being given off. The oxygen is given off at the positive plate and converts the sulphate of lead into peroxide of lead again, the sulphur going back into the electrolyte; the hydrogen which is given off at the negative plate enters into combination with the sulphate of lead, reducing it to pure lead, the sulphur returning to the electrolyte and increasing its specific gravity. This action restores both plates and electrolyte to the original condition of full charge. If the charging current is continued after the cell is fully charged, that is when all the active material has been converted to peroxide of lead and spongy lead respectively, no further effect will be produced except to decompose the water, the resulting gases pass off through the water giving it a milky appearance. This indicates that the cell is fully charged. Continuing the charging current beyond this point, that is overcharging the cells at the proper rate, does no harm to the plates, but the energy represented by the current is wasted.

When the cell has been properly charged the positive plate is of a brown or deep red color, while the negative is a slaty gray. Naturally the chemical action can take place only at a certain rate, depending on the amount of active material and the construction of the plates. If it is attempted to give to or take from a cell too much current, the efficiency and durability are affected.

Generally speaking there are two distinct methods of preparing the active material of storage battery plates. One of these consists in applying mechanically some material to the surface or exterior of a lead conducting plate or grid, which is either active itself or can be converted into active material by a process of electrical or chemical formation; the second method consists in treating or forming electrically or chemically the surface of a lead plate, which has been designed to present a large area to the electrolyte, whereby the surface is converted into active material.

The first method is commonly known as the pasted type of cell, although the active material is not always supplied in the form of paste. The second method is known as the Plante type, so called because Gustave Plante, a French electrician, was the first to utilize practically the electrical method of forming the plates without the use of applied material.

The larger proportion of storage cells now in use are of the lead accumulator type mentioned so far, but there is a second class of storage cells made, which are called bimetallic accumulators, and whose elements consist of two different metals, the electrolyte being a salt of one of the metals. The principle upon which they work is the same as in the lead cells.

Naturally, lead accumulators are very heavy, and this being a great objection to their use in certain instances, a combination of elements of less weight was sought for, and the bimetallic cells were produced, but they never have been used to any great extent. The electro-motive force in them is somewhat higher than that of the lead accumulator, but owing to the danger of local action on open circuit they will not retain their charge for more than a few days, while a lead accumulator will scarcely lose twenty-five per cent of its charge in as many months; besides, the tendency of reducing the weight of these cells must necessarily weaken their construction, and on this account their life will be much shorter. About two years ago a small battery of this class was shown at the different dental meetings in connection with a small mouth lamp, and special stress was laid upon its high electro-motive force and its small weight. The battery has disappeared from the market, and those who invested money in buying it have probably found out by this time that the whole appliance was a failure.

It will be seen from the aforegiven description that the storage of electrical energy is entirely different from the storage of any other form of energy. A quantity of electricity cannot be stored or accumulated in a vessel or reservoir, because it does not exist in a tangible form. We are able, however, to make the electric current perform work in shape of chemical action and afterward by setting up certain reactions can reproduce the current stored. As long as the materials used are free from impurities and the chemical action is continued until completed, there is practically no limit to the time which may elapse between the storage of electricity with its contingent chemical action and the reaction, which, practically speaking, sets free again the electrical current.

Having considered the principles upon which the storage of electrical energy depends and noted the various elements which are necessary to make up the complete cell or storage battery, we will examine its application with special reference to dental practice.

The first and most common application of the storage cell in dental offices is to furnish the necessary power to run the dental motor, where no other current or no day current can be obtained. In order to keep the number of cells necessary to produce a certain amount of power, required for this kind of work, as low as possible, special wound motors must be used, which will work under a very small pressure. The unit of power in all electrical problems is the watt, which is equal to the voltage of electromotive force multiplied by the amperes or intensity of current. 746 watts represent an electrical horse power. To produce such a horse power, or any fraction of it, it will not make any difference if the voltage is high and the amperage low, or vice versa. 93.25 watts or ⅛ horse power may be produced by a current of 110 volt pressure with only 0.85 amperes or by 4 volts with 23.34 amperes, or any other combination giving the total of 93.25 watts, provided a motor can be constructed whose windings will be able to carry the current and in the same time offer sufficient resistance to the pressure, without being too clumsy in appearance.

Therefore, the resistance and carrying capacity of the wire on the motor are the main points to be considered. Necessarily with a low voltage the wire must have a large cross sectional area in order to carry a current of high intensity without overheating the conductor, but as such a heavy wire has also a very low resistance and quite a large number of feet will be required even for the lowest voltage, practical reasons forbid to go in the construction of a battery motor beyond certain limits. Now the question arises, what power is actually needed to run a dental engine? I know, from everyday experience, that the large majority of dentists are laboring under a very wrong impression with regard to this point. Their judgment being based on the ratings and sizes of the ordinary motors coming under their eyes, most of them think that about one-fourth horse power would be needed for a cord outfit and laboratory work and perhaps one-eighth horse power where the power is taken directly from the armature shaft. The reason for this is, that nearly all the small motors on the market are highly overrated and when it comes to an actual test the power developed will produce only fifty per cent or less of the indicated power. If the electrical motor is properly constructed about one-sixteenth horse power will be sufficient for cord outfits and the running of a lathe head and one-fiftieth horse power for a motor connected directly to the cable and handpiece. Of course the latter form will be the most preferred where a storage battery has to be used as being the most economical on account of the smaller number of cells needed.

The next application of the storage battery in dentistry is to furnish light and heat, and in both cases more satifactory results are obtained than from any other source of electricity.

The small mouth lamp or the somewhat larger mouth illuminator will give a steadier light and will last longer than when operated from an incandescent light circuit through a rheostat, or from primary cells, as the current is of absolute uniform flow and no burning out of the lamps and going down of the light can occur through variation of pressure.

Heating instruments, such as root driers or hot air syringes where with a low voltage a current intensity of not over two or three amperes is required, may be as well operated from the incandescent light current through a rheostat as from the storage battery, but the electro-cautery where with the low pressure a current intensity of from eight to twenty or more amperes is needed no rheostat can perform this, and only a motor generator

—a quite expensive machine—or the storage battery will answer the purpose.

Outside of the before mentioned apparatus and instruments the storage battery can be used for any other purpose where the electric current is wanted, provided its cost is not too high and the same result can be obtained in a cheaper way as for instance in cataphoresis.

The efficiency of a storage battery depends to a great extent upon the proper selection of the cell, best suited for the work required, its care and maintenance. In early days of storage battery work this was ignored and many of the failures, which have been recorded are traceable to this account. The general practice was to consider a storage battery simply as a piece of apparatus to store up electrical energy for any purpose, irrespective of the character of the work, the classification being nothing more than good, bad or indifferent, with very little of the first. Modern practice has, however, changed this and it is at last understood that there are many types of cells, and that a cell which can run a small motor need not of necessity be the one which should be used for heavy cautery work or to run a large motor.

In the dental office the selection of the cell depends in a large measure upon the way it can be charged. Where a commercial current is available which can be brought right in the office and the charging can be done as often as desired a cell of fifty ampere hour capacity will be sufficient for small motor work. If a larger lathe motor and heating instruments are used larger cells of about double the ampere hour capacity will be needed. Usually portable batteries in covered wooden boxes are preferred on account of their neater appearance, but from a practical point of view the open glass jar is by far the better, because its contents are always open to inspection and the condition of the plates and electrolyte can be watched.

The cells should be placed in a dry, well ventilated place, not too near any heater and not too far—that is over twenty feet—from the apparatus operated by them and the conducting wires used must be as heavy as possible to reduce their resistance to the flow of current. This is a very important point to be observed, as many batteries which did not furnish sufficient current to give the motor its full speed, were found upon inspection to be placed in a distant cellar or laboratory connected to the motor with ordinary No. 16 or No. 18 lamp wire, while when this was replaced by No. 10 or No. 12 wire, the motor worked perfectly.

In dental practice the storage battery should always remain in its original place, and not be removed at all. The old method of sending out storage cells to be recharged at the electric light station or any other electric plant is impracticable and in most cases disastrous to the jar and plates. If the expressman handling the cells does not break them on his way to the charging place the local electrician, or as he prefers to be called the expert electrician, in a large majority of cases, especially in small towns, has very little, if any, knowledge of the charging of storage cells and either by reversing the poles or by sending too strong a current through them, will destroy a battery that with proper care and attention probably would have done good service for several years.

For the above reason storage batteries should be charged right in the place where they stand, and the charging current brought to them, so that it can be done without their removal. This brings us to the question which current is suitable for charging storage cells and how it is to be done. Only a direct continuous current can be used for this purpose, such as furnished from a direct incandescent or arc light circuit, from a small dynamo, a primary battery or a thermo generator.

No charging can be done from alternating currents. In charging an accumulator only a small part of the E. M. F. required to force the current through the cell is expanded in overcoming the resistance of the plates and electrolyte; the remainder is expended in overcoming the E. M. F. of the chemical action of the cell. It follows then that if the applied E. M. F. be just equal to the E. M. F. of the cell no current will flow, so that the E. M. F. of the cell itself may be considered as a counter E. M. F. opposing that of the charging current—in other words the E. M. F. of the charging current should be about twice as high as that of the cells to be charged. On the other hand the amount of current charged per hour should not exceed what is called the normal charging rate, and which differs according to the size of cells. The normal rate of charge for small accumulators is about ten hours, and if the cell has a capacity of fifty ampere hours not more than five amperes should be charged, or ten amperes for a

100 ampere hour cell. Thus in using a direct incandescent light circuit its voltage must be cut down by interposing the proper resistance in order to bring the current to the normal rate. This can be done either by a rheostat or by a bank of incandescent lamps connected in parallel, in series with the main circuit. Every sixteen C. P. lamp will allow about one-half ampere of current to flow and ten such lamps connected in parallel will furnish a charging current of five amperes. Of course there is no harm in charging at a lower rate than the normal, if the great number of lamps should be any objection to the operator, or to use fewer lamps of higher candle power.

With the arc light circuit, where the arc lights are connected in series with the main line and only a fixed amount of current is flowing no special resistance is needed, as the storage battery is simply connected in series with the line the same as all the arc lamps.

In case the current on such a line should be in excess of the normal charging rate, which would be damaging to the plates, the battery should be connected in multiple; that is, all its positive plates to one end of the line and all its negative plates to the other end. Thus the large current is divided through the battery and each cell instead of receiving the full amount of current will only receive its pro rata.

Very few dentists will ever use small dynamos to charge their storage cells with, as the first outlay for such an equipment is quite expensive and requires a good deal of attention.

To charge accumulators from primary cells, where no commercial current is available, is perhaps one of the simplest and also cheapest ways of doing. Only primary cells, which will be able to deliver a steady continuous current for any length of time can be used for this purpose, and among them the so-called gravity cell in its different forms is the best. This cell will deliver a very steady current of a low intensity as long as the chemical action is kept going, and therefore it can be left connected permanently to the storage battery. All the attention needed is the replacing of the absorbed copper sulphate about once a month and of the zincs about every six or eight months according to the type of cell used. When white salts begin to creep out on top of the cells this is a sign that the solution is oversaturated with zinc sulphate and part of it should be taken out from the top of the cell, without disturbing the solution too much, and be replaced by clean water. If these points are carefully observed the primary battery will furnish a very satisfactory charging medium, which renders the dentist absolutely independent from the exactions of electric companies, especially in small towns.

The gravity cells deliver a current of about three-eighths ampere, and when connected permanently to the storage battery will charge about nine ampere hours in twenty-four hours' time. If this should not be sufficient for the work to be done, another series of primary cells of the required voltage can be added, which will double the amount of current charged.

The use of thermo-generators in connection with the storage battery is comparatively new in this country, although they have been used quite successfully in Europe for this purpose for the last ten or twelve years. As the name indicates, in such apparatus the current is generated by heat, the instrument consisting of a large number of thermo-electrical pairs (strips of two metals of different coefficient of expansion and electric affinity), connected together in series in such a way as to expose the inside or half of all the joints to heat, while the other half or outside is kept cool. Thus by the difference of temperature between the two joints of each pair a small electro-motive force is generated, which will increase with the number of pairs or elements connected together. Owing to the very small E. M. F. generated at each joint and the high internal resistance, quite a large number of pairs will be required to produce pressure sufficiently strong to charge three or four storage cells. Naturally the cost of such thermo-generators will be high and their use limited to small batteries. On the other hand, the electric mallet, mouth lamp and even a small fan motor may be operated successfully direct from the apparatus, while the amount of current flowing will not be strong enough to drive a power motor direct, and the accumulation of current in the storage battery is needed.

In charging a battery the following points should be watched: Special care must be taken that the polarity of the charging current is right. The positive pole of the battery must always be connected with the positive pole of the charging source. The voltage required to charge should be at least fifty per cent higher than the combined voltage of all the cells in the battery, assuming for each cell an E. M. F. of two volts.

The rate of charge should be preferably kept at normal or under, as continuous charging at a higher rate than the normal will damage the plates.

In dental practice discharging until complete exhaustion is not advisable. Repeated recharging only for a few hours every few days will keep the battery in much better condition and preserve the plates much longer than a complete discharge and then a recharge. Besides, the operator being liable to forget that his battery is exhausted will let it stand so for a length of time and the plates will soon become seriously injured. A long series of tests has shown that the continuous discharging of storage cells below one and nine-tenths volts is liable to produce sulphating of the plates; and the nature of the chemical action being changed, it also leads to the distortion of the positive plate, which is known as "buckling."

As the plates are located very close together in the cells to reduce the internal resistance, buckling is liable to cause the plates to touch, thus short-circuiting the cell.

The plates should always be completely immersed in the electrolyte. Evaporation will cause the electrolyte to fall below the level of the plates; this is detrimental and must be compensated for by the addition of water, as it is only the water which evaporates, the acid remaining in the solution. When adding water to a cell to make up for this evaporation it should be put into the cell through a hose or funnel reaching to the bottom, otherwise the water being lighter than the acid will remain in a layer on the top.

With a good modern storage battery very few troubles are liable to occur, provided proper attention is given to keep the regulation of the charge and discharge within proper limits and if the cells are properly supplied with electrolyte. The only thing likely to happen and cause trouble is the formation of short circuit between the plates, causing the cell to discharge through itself. The short circuit may occur either in the cells through the scaling or peeling of the active material, the pieces which become detached lodging between the positive and negative plates, or in the apparatus operated from the battery.

As soon as it is noticed that the battery will not hold its charge it should be immediately examined for short circuits. The best way to do this is to probe between the plates with a thin piece of hard rubber, thus removing any material which may have formed a connection between the plates. If this will not stop the trouble and the electrolyte is covering the plates entirely, in most of the cases the short circuit will be found in the apparatus. One or two charges and discharges will soon bring the cells back to their original condition.

To sum up what has been said before, all there is needed to keep a storage battery in good condition, is a proper installation, a judicious charging with due consideration for the amount of the current taken out and a careful maintenance of the cells.

The storage battery of to-day is a practical and mechanical piece of apparatus. Engineers have come to the assistance of the chemist, the result being a well designed and constructed apparatus, free from the weak points which were inherent in all early types of cells and which necessitated the constant attention of a skilled doctor or nurse.

WHAT IS DISEASE? WHERE DID IT ORIGINATE? ANCIENT AND MODERN THEORY.*

BY JAMES E. LOW, D. D. S., CHICAGO, ILL.

Webster says any deviation from health in function, form or structure is disease. What we most desire to know, and must know to be of any service to mankind, is the cause of this deviation in health, form or structure. Where did it originate? Can we with any possible degree of reason claim that we were originally born diseased? That the human family was destined to live and suffer with disease? I believe not, but that all disease has been brought upon us through ignorance, or the lack of will power to control our passions and perverted appetites; that our mission as human beings will not be fulfilled until we have reached such a degree of knowledge that our relations with each other are in harmony with nature; that our minds, through perfect control of the will, directs our movements in all things. Under these conditions, all things being equal, we have reason to believe that disease will disappear from the face of the earth. If you are not in harmony with nature, you are diseased. As civilized human beings we do not properly understand our relations to one another.

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*Read before the Southwestern Michigan Dental Association.

Our whole life is one of continuous hustle, bustle and strife. We are at war with ourselves and every one else.

With all our boast about civilization and progress, we have a corresponding degree of degradation, crime and lawlessness. No uncivilized nation on this earth can produce such a low, degraded class of human beings as exists right in the midst of our so-called "civilization;" as a result, or otherwise, disease claims its victims by the thousand, many before reaching the age of maturity. To battle against this we have among us thousands of learned physicians struggling with disease, and they have relieved, and continue to relieve thousands. Many have their theory as to the cause and cure of disease, which might be termed "fads" for the lack of demonstrated proof to substantiate their theories. These last until others appear to take their places. Many times the theory will be dressed in a new garb and presented again. At the present time the "microbian craze" has many advocates. One writer upon the subject claims that Kircher and other pathologists of the seventeenth century originated this germ theory, and claimed these germs were the origin of disease. This has been frequently revived. Leeuwenhoek described bacteria in the seventeenth century, and it is not strange in those days of theoretical turn of mind, rather than philosophical, they should frame the hypothesis that these organisms are the specific agencies producing the respective forms of disease.

The discovery and perfection of the microscope has revealed millions of infinitesimal living growths, too minute to behold with the naked eye, and we know that every particle of matter is, so to speak, peopled; that every green leaf, shrub or flower is swarming with life; that every wind that blows wafts millions and millions of germs through the air. They are on everything and in everything. They propagate when they come in contact with the conditions necessary for their development. Almost all humor, if not all, in man or beast, is swarming with myriads of living creatures. The food we eat and the water we drink is full of life. The globe we live on, which is constantly being operated upon by vibratory laws of nature, is a life producing planet. The old of all life is constantly giving way to the new. Nature is constantly repeating itself. The death of one kind of life means the birth of other forms of life, which nature has so wisely arranged; and when we can properly understand cause and effect, the functions of microörganism will be understood. They must be strictly in analogy with every law of nature. If they abound in our food, they are to contribute to its nourishment and to impart to us their vital force and give more nourishment to our bodies. Dr. Alexander Wilder says: "Even these that have been indicated as sources and agents of mischief are undoubtedly by this presence enabled by means of warmth and moisture to absorb oxygen energetically and thereby hurry the process of fermentation to ulterior decay."

Karsten says: "They pertain neither to the animal nor vegetable world, their mission being only to contribute to the promotion of putrefaction and disintegration. Instead of being cells and germs to generate special diseases, they are agents for neutralizing and removing matter that might otherwise be harmful and deadly." Dr. Pettenkofer, of Bavaria, who has generally been regarded as authority in these matters and as an investigator of cholera germs, in his investigations, was so thoroughly convinced of their harmlessness in health that he swallowed large quantities of the microörganisms, at various intervals, with no seeming interruption to his general health. It is a well established fact that any severe shock to the nervous system may result in zymotic disease. In one person it might terminate in one form; in others, another form. The innumerable complications that arise between the varieties as they are distinguished one from another, are due to the various physiological and mental conditions of the various subjects. When we take into consideration that the universe is a receptacle of life and that nothing is really dead, but what we call death physically is simply life in another form, developing through natural laws, and that every disease must first have the conditions necessary to produce that particular form of disease, then we will understand why certain forms of microbes are found connected with the disease. Dr. Hughes Bennett says certain well-known parasitic diseases are spread by contact; but many of our unquestionably infectious diseases, such as smallpox, scarlatina, measles and typhus have no such origin. Many experiments have been made to more thoroughly establish these facts. Various microörganisms have been taken from the subject in which they existed and inoculated into healthy persons without inducing disease. In other cases, virus inoculation, without microbes, has produced disease.

We know in cases of infectious disease that but few, comparatively speaking, after they become exposed ever have the disease. The same may be said in connection with all infectious diseases. We must not lose sight of first principles in our investigations, but let us put together the missing links in the chain of facts and we will find that the foundation of this theory, as advocated, is at fault.

Lœffler, after so many experiments, said he considered his proof not satisfactory that bacilli was the cause of diphtheria, as in many cases he had not been able to find them, but had found them in many instances in a healthy throat and that these persons did not have diphtheria, even with the germ in their throats. Some of the most eminent investigators have by their experiments given evidence enough to satisfy those looking for the truth of this fact. Other theorists claim that the mind plays an important part in the cause, treatment and cure of disease. Let us consider this chain of thought for a few minutes. We have many authenticated cases on record where persons have been so affected by fear combined with imagination that they have actually died with all the symptoms of the disease that they feared. This has occurred not only in epidemic disease but in nearly all the infectious diseases. Many people have died with all the symptoms of hydrophobia, cholera and other diseases that they never were exposed to. These facts have been used to prove that if a condition of the mind can produce disease other conditions can effect a cure. There is no satisfactory evidence of these facts as the diseases spoken of were brought on by fear, and fear destroys the harmonious conditions of mind and body. This class of diseases can no doubt be cured without medicine; in fact, anything that can be done to restore harmonious conditions will effect a cure. The effect of concentration of thought as an effective principle in the cure of diseases has been claimed by many of the eastern nations that have studied and practiced it for thousands of years. It is most rapidly being introduced into this country under many names, but it will prove to be, when properly understood, a universal law that has existed for all times. It is no science, but a simple law of nature not yet generally understood. When we stop to consider we are dumbfounded not at our wisdom but our ignorance. If by the power of concentration of thought many diseases can be cured as claimed, what does it prove? It proves that we are ignorant of the cause of many diseases which may have had their origin in the mind. If so herein lies the remedy for this class of diseases. It was taught by the ancient astrologers that almost all diseases were the result of planetary movements. That every planet is operated upon by every other planet through the vibratory law of nature; that we feel their influence in proportion to their movements, in conjunction with other planets in their cycle. Pythagoras, who may be called "Father of Numbers," claimed that everything had a number; that every letter in a person's name represents a number and that every number meant something. In fact, cabalistic astrology is based entirely upon the theory of names and numbers. It teaches that all names are numbers and that all numbers are names. That is to say that the one is resolvable into the other. A name is a mantrum, an invocation, a spell, a charm. It gains its efficacy from the fact that in pronunciation certain vibrations corresponding to the mass chord of the name are set up, not only in the atmosphere but also in the ethereal substance referred to by modern philosophers as "mind stuff," whose modification forms the basis for changes of thought. It is evident to us that names, when sounded, impart to our minds certain characteristics, more or less definite, according to the acuteness of our psychometric senses.

Is it not strange with all our boasted advancement in the sciences that there is now a wave of ancient theory and practice creeping into the western hemisphere? Teachers from some of the oldest nations of the East are here and their followers are increasing with wonderful rapidity; their teachings are being accepted that but a few years ago were unknown to us. In Chaldea seven thousand years ago, the science of astrology was taught and believed in. With this ruling, a man's destiny is fixed at the time of his birth by the stars; that is to say that if natural conditions and influences are allowed to take their course, as indicated by this influence, you would have this or that disease at the fixed time, according to the ruling of this or that planet in the horoscope which indicated diseases. To counteract this influence the will power is the only remedy and it must be brought into positive action; all appetites and desires must be held in obeisance by the concentration of thought. By these teachings it is understood that man is a law unto himself governed and controlled by the spirit which is paramount to all other influences when carried to a certain degree of self-sacrifice. In the Scriptures we have evidence that they believed that the name carried with it a peculiar destiny. In the Book of Revelations it says: "Here is wisdom. Let him that hath understanding count the number of beasts; for it is the number (name) of a man; and his number is six hundred three score and six." I might repeat passage after passage showing the writers believed in astrology and that it controlled their movements. It further says "Leah brought forth a son." That is to say, in astrology, that the planet Jupiter is then on the horizon and is Lord of the horoscope and Gad means "horseman." I mention these facts to show that human nature is constantly repeating itself. At one time we are advocating one theory and at some other time, another. There is evidently some truth in all the theories. The great trouble seems to be in our not being able to separate the wheat from the chaff. Many have so much chaff in their theories that the wheat is lost sight of. They mistake the chaff for the wheat and never find out their mistake and charge their mishaps to Providence and sleep in peace over their own stupidity.

From the earliest history of medical science it has had fads to contend with that have kept back its grand march to the ultimate annihilation of diseases. It is scarcely a quarter of a century ago since blood letting was the panacea for all diseases; this in connection with choking to death of the patient who was burning up with fever by refusing him water, a teaspoonful at a time being the limit. At the same time the patient was dosed with calomel or jalap, which ran pace with the practice at that time. Lucky, indeed, was the patient who survived this attack, which was more destructive than the disease. Then came the use of opiates in all their varied forms, which was given for every pain or ache, until our towns and cities were full of opiate fiends and the death rates from their use and other kindred medicines administered outnumbered those that died from all the infectious diseases. Look at the worthless compound—chloral—when it was first introduced. The medical fraternity went fairly wild over it, and gave it for all the ills that flesh is heir to. The medical journals and all the newspapers were filled with its alleged curative powers, but it has been demonstrated thoroughly and long ago abandoned by all the better class of medical men on account of it not having any remedial virtues. Our drug stores are full of nostrums which contain a large per cent of this and kindred agents that may relieve pain momentarily, but increase our death rate instead of diminishing it.

Cocaine, which is of comparative recent introduction, is a dangerous drug, and what beneficial use it may be put to outside of minor surgical and dental operations, is problematical. If, in our attempt to cure disease we administer medicine that produces conditions equal or more dangerous than the disease, has our labor been of any service to the patient? Cocaine may be truly called the successor to chloral. It is said by those best qualified to judge that it has no virtue in curing disease, its effect being temporary; and cocaine fiends are becoming another destructive element in the welfare of mankind, brought about by its use in the medical and dental profession.

For some time the dental profession has gone wild over the discovery of microscopical-parasitic agents that they claim cause decay of the teeth. That they are to be found in decayed teeth as well as around the teeth, when certain conditions are present, we know; and that condition is where decomposition has taken place; but that they play any part in the decay of the teeth sufficient proof has not been shown. It is a law of nature that the moment animal or vegetable life begins to decay, germ life in great varieties appears in swarms to devour it. We can reasonably believe they are developed spontaneously out of morbid material, consequently, a secondary condition; when we know what is lacking to make up the combined whole of what nature intended us to be, with the combined harmony of all the organs, disease will disappear. It is the only rational conclusion we can arrive at—a disturbed natural condition of the body is the cause of all diseases and all decay of the teeth. For instance, we know our bodies are constantly wasting and wearing away by one force while the other force is, or should be, building up to replace the wornout or waste material, by new and healthy parts. We have reason to believe that the process of building up is just as natural as that of wasting away, but these conditions of building up are not always present while those of wear and tear are. Here we have a line of distinction. The wear and tear of the system, or even death, is no mystery, but life is; and to live in its fullness means to understand the laws governing it and by them be controlled. Then if the body, or any part of it, is not keeping up this waste and supply process properly, or if the conditions of supply are disturbed by improper food, indigestion and poor nutrition or any unnatural conditions, some of the weaker forces of life must necessarily give out, because the conditions spoken of are not present. Be it in infancy or adult age, the conditions of supply must meet the demand of each and every organ. Whatever organ does not receive this supply of material necessary for its support and growth must yield to the surrounding influences and become diseased for want of sufficient vitality to resist. What takes place in the process of digestion when the stomach and all of the digestive organs are in a normal condition and a moderate quantity of digestible food is taken into it? All of the organs are supplied with nutriment and we feel strong and vigorous and nature is prepared to resist all attacks. Not so where the digestive organs are overtaxed. There is just so much digestive material supplied to the organs of digestion, and this can digest all the food necessary to keep up the vigor and strength of all the organs; but when the supply has been exhausted and food is being continually taken into the stomach, we have inactivity of the organ and with it decomposition, and this means disorganization and all the associated symptoms of disease. The inactivity of one life means activity of another. It is no wonder that poor human nature is so afflicted. We talk about the impurities of our water and the necessity of boiling it, and the malaria in the atmosphere, when in fact we generate the condition within ourselves to take on all manner of disease. In fact, every organ, every nerve and the purity of the blood depends upon good digestion. When the blood becomes thin and is deficient in red blood corpuscles any disease may follow that is peculiar to the condition indicated. We can here draw the line of distinction between disease and health. Pure blood, which means perfect circulation, is an impenetrable armor against all diseases. It is the lack of circulation that causes death. Keep the blood pure and the circulation perfect and we need have no fear of bacilli. They are bred and propagated in impurities. It has been claimed that disease is caused by congestion. This is virtually a fact, for where there is stagnation of the blood there is inflammation, and this means impurity of the blood. When the blood is circulating freely and is not contaminated with impurities, there is no danger of inflammation or congestion, which means virtually the same thing. A severe bruise or cut stops the circulation at that point; the circulation of the blood is interfered with; this means inflammation, as the blood accumulates in the veins when it should reach the lungs so often to be purified. All impurities mean disease. The same condition holds good with all disorganized functions.

All children born into the world under certain conditions are healthy. From this time on, the health of the child depends mainly upon its care and treatment. It has been estimated that half of the children born into the world die before reaching the age of sixteen. We can truthfully charge a large share of this great slaughter to ignorance or willful neglect. Mostly ignorance. It has been estimated that only nine hundred persons in one million die of old age. Out of this number one thousand two hundred succumb to gout, eighteen thousand four hundred to measles, two thousand seven hundred to apoplexy, seven thousand to erysipelas, seven thousand five hundred to consumption, forty-eight thousand to scarlet fever, twenty-five thousand to whooping cough, thirty thousand to typhoid and typhus fever, and seven thousand to rheumatism. This estimate is made as regards the population of the world but the estimate does not give the per cent of the other diseases, its reference being only to the diseases mentioned; but if only nine hundred persons in one million die of old age, there must be something lacking that goes to make up the combined whole of what nature requires, as death from any cause except the wearing out of the body by old age is unnatural. We have considered a few of the many theories advanced as to the cause and cure of disease. Let us now for a moment lay aside all theories in our investigation of this subject and see if we cannot arrive at some satisfactory solution of the question. All those who have given this subject careful study will agree with me in saying that by continued violation of natural laws from generation to generation many of us have become constitutionally weak and unable to resist the surrounding influences of life. Not only this, but we are continually violating natural laws by gratifying some desire to the extent of injuring our constitution. When this is done, we have opened wide the gates to disease, for vigor and strength only can resist disease. Those who are born into the world with hereditary disease and unnatural desires form the larger portion of the death list of those who die prematurely. In this list we may class those whose appetites and desires are gratified to the extent of reducing their vitality. All those who become abject slaves to habit, either hereditarily or otherwise, come under this head. This in connection with ignorance of the laws governing the demand for food necessary to supply the bodily growth and the natural waste has caused much suffering and added largely to the death list not for lack of food, but for lack of food containing the proper elements to supply this waste. We know that the body contains hydrogen, carbon, nitrogen, oxygen, calcium, phosphorus, silicon, sulphur, iron, sodium, potassium, magnesium and chlorine, and from these the laboratory of the human body forms numerous combinations, which are necessary to keep up this daily waste and growth with food containing all of these elements, as it is absolutely impossible to live any great length of time and have perfect health without having food containing all these elements. Disease then is the effect of a cause involving disorganized functions.

DENTAL EDUCATION OF THE LAITY.*

BY FLORENCE E. THOMPSON, D. D. S., CHICAGO, ILL.

This subject was not chosen by reason of the writer's knowledge thereof, but rather from a strong conviction of the need of education in this direction, and a desire to incite thoughtful discussion that may tend to formulate active, efficient measures for the successful solution of the question.

That the masses sadly lack dental education is apparent to the most casual observer, but to an intelligent, conscientious dentist the situation is well nigh appalling. The result of this ignorance has its most forcible expression in the condition of the dental organs of the public at large. On the street, in public conveyances, at social functions, everywhere, one is constantly being shocked by outraged nature, not only from lack of dental care, but alas! too often the result of it. The rich and the poor, the young and the old, the scholar and the ignoramus all furnish evidence. And the pride and complacency with which some of these display their pain earned artificial monstrosities is a most discouraging feature. This view may be regarded as too pessimistic, but while admitting that dentistry deserving the highest commendation is seen, it may be quoted as a negative quantity, and left to take care of itself while discussing the question at hand.

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*Read before the Chicago Dental Society.

The task of changing the present condition is no sinecure, so before considering what were best to do, it might be well to enumerate some of the possible results. If the laity were educated ideally, and every dentist should become an idealist and practice according to his ideals, it seems not unreasonable to assert that the standard of beauty and expression of the human face would be increased fifty per cent; that pain and suffering resulting directly from diseased teeth and gums would be almost wholly overcome, and that constitutional ailments would be greatly reduced. Surely these are results worthy of persistent attention and study. But how shall we bring the practice to the theory?

Educators must be found to meet the demand, and they must be those having knowledge upon the subject. Shall dentists then be held responsible for this work? Yes, for the lion's share. But first the dentists' accepted source of knowledge, the dental college, must be called to account for its quota of responsibility. Granting that the colleges are indispensable, and adapted to the end designed; that they are progressive, each succeeding year bringing its improvements, there are still errors to be eradicated. The student's time should be more thoroughly utilized. The term should begin in earnest with the opening exercises, and not wait ten days for delinquents, thereby giving early arrivals a chance for a good start in the easy down grade of idleness and dissipation. The colleges are not living up to their opportunities in looking after the *morale* of their students. Again, college instructors should be more closely identified with the college. Some of the most desirable educators can only be secured for a limited amount of time, and the time they can give should be gladly accepted; but the *personnel* of the faculty and demonstrating force should be represented largely by competent teachers who make this their principal work.

And the college infirmary? What is its legitimate end? Webster says "An infirmary is a place where the infirm are treated gratuitously." The dental infirmary has undoubtedly been rightly named, and should be for the use of those who are unable to pay for dental service and who must go without unless it can be obtained free of charge. Here students in training should give this service under the immediate direction of expert demonstrators. Were this established usage the self-supporting laity would no more expect to get dental service at the infirmary than it would its board at the county house, but would go to the dentists whom the colleges have educated to be independent practitioners. The college, as it now exists, would probably not be able to support this work, but if the subject were properly agitated philanthropists would come forward with endowments as in other benevolent causes. The above must not be construed as antagonizing the colleges. All honor to the multiplied benefits derived therefrom; but when a reform is to be instituted, benefits need not be discussed, but only detriments.

Any educational movement among the people, failing to enlist the coöperation of the public schools when such coöperation is practical loses a powerful ally. Therefore recent efforts to secure this alliance with dentistry should receive most hearty commendation and vigorous support. "The seeds of first instruction are dropped in the deepest furrows." The child now being educated will soon be the sovereign.

Some confusion may arise unless the nomenclature of school gradation is fixed. The term "grammar school" is often heard, but the "grammar school" is more properly an English institution. The present accepted gradation of the American system is kindergarten, primary and high schools. Some cities have an intermediate grade between the primary and high school, and this grade is often called the grammar school. If it is the grammar school according to this classification that is the seat of action for dental observation it seems misplaced. The educated assistance of the teachers in the kindergarten and first primary grades would be invaluable in helping to save the deciduous teeth in a wholesome condition for their allotted time, and the first molars permanently. If these two points could be gained, what a multitude of difficulties would be overcome! Again, the teachers' course in the high school should give instruction in this work. A superintendent of dentistry in the public schools seems as reasonable and profitable as a superintendent of music, drawing or child study. By the way, might not the dental observations be a part of the "child study?"

The daily press rightly interested and aided by the dental profession proper, would be another potent ally. Its influence at present is represented almost exclusively by the advertising space used by the "dental parlors" and the joke column. The public's blind faith in printed statements is most strikingly demonstrated by the number of intelligent and apparently thoughtful people who credit the absurdly "false on the face" statements of the "dental parlor" advertisements. That the ignorant only are the victims is far from true. Dental societies should make vigorous efforts to create sentiments that will exterminate these baneful parasites that prey on legitimate dentistry. It might be suggested as an initial movement that the Dental Protective let the hobgoblins catch them.

But while there are many tributary channels through which the laity may gain dental education, the principal one must be through the dentists themselves. There are important reasons for this. First, they have the most information on the subject; second, they have the most to gain by it. "Many hope that the tree will be felled, who hope to gather chips by the fall." Third, they are brought directly in contact with the people at a time and in a manner that gives them license to impart this information. Let the dentist pursue his calling with a firm determination to "provide things honest in the sight of all men;" to practice what he preaches and to preach while he practices. At least he can give an occasional sermonet with dentistry as the text. Patients are very likely to think while in the dental chair, and very likely to think on dental subjects, so the dentist might lead the thoughts along informatory lines. But do not make the mistake of giving them a scientific treatise couched in technical terms hoping to impress them with your profundity. If they are really worth impressing it is probably they have spent so much time in their own particular field of work that they have not had the leisure to take a course in dentistry, and will not understand you. Give them something practical and helpful. Teach them to watch the gums for signs of inflammation and recession; to discover the little white spots on the teeth that many never dream is primary decay; to notice the deposits that accumulate so slowly that they are not aware of their presence, and the fate of a tooth that gives no service. Teach them to appreciate the service that takes nature as its guide and not to covet the glittering works of man. Teach them that when diseased conditions have made much progress in a vital tooth, that pain is probably necessary to a thorough restoration, and that the pain is not due to a careless manipulation, but is the result of their own neglect. Do not slight the work for fear of losing the patient's good will.

> "Mercy is not itself, that oft looks so;
> Pardon is still the nurse of second woe."

A good dentist should think well of himself and desire that others share his opinion, but he should "not think of himself more highly than he ought to think, but think soberly according" as his good opinion is the result of real merit. No successful dentist is justified in thinking himself wholly self-made. He is the result of many decades. It has been said that "great men, in any line, are rarely isolated mountain peaks, they are the summit of ranges." Do not deride the work of another simply because it lies beyond your capabilities, or your willingness to have what has been turned "an almost ignominious love of details," but by perseverance raise yourself to his standard. Strive for greater success in your profession than has ever been achieved. The ingenuity of the dentist has not been exhausted. The future will show better results than the past or the present.

What the individual dentist does for the individual, the dental society and dental literature must do for the people *en masse*. These must be the agencies to secure proper dental legislation; to systemize and execute plans for caring for the indigent and secure the coöperation of auxiliary aids for bringing the dental profession to a higher plane of usefulness.

So let us set our houses in order and seek for the truth, but do not make the mistake of thinking we have found it when our efforts are crowned with financial success. "All men who know not where to look for truth, save in the narrow well of self, will find their own image at the bottom and mistake it for that which they are looking." Let the present generation of dentists labor with irresistible perseverance for the elevation of the profession within itself, and the education of the public to a state where it will appreciate and make use of its opportunities. And while the coming generation will not find that all is done, we will be able to say as did Cæsar, "I found Rome brick, I leave it marble."

A FEW STATISTICAL FACTS, SHOWING THE NEED OF DENTAL SERVICE IN THE ARMY.

BY CHARLES C. STANLEY, D. D. S., COLUMBIA, S. C.

When the First and Second South Carolina Volunteer Regiments were being organized for the war with Spain, they were stationed in this city, prior to the First Regiment going to permanent camp at Chicamagua and the Second to Jacksonville. The surgeons were not supplied with dental instruments for the extraction of teeth and, by the authority of the surgeon general, Capt. E. B. Fuller, the mustering officer, appointed me to do the extracting necessary for the men of the above regiments. I came in professional contact with about two hundred of the officers and men. I extracted between 140 and 150 teeth, most of which were paid for by the government, and the rest were paid for by the men, they not having orders from the surgeons to have the extracting done. For several days after paydays, I devoted all my time to operative work for these soldiers, they paying for the same; and you can well imagine that out of their small salaries, they only had just such work done as required immediate attention.

During my professional relationship with the soldiers, I noticed one case of syphilitic necrosis, two cases of necrosis due to chronic abscessed teeth, six cases of alveolar pyorrhea (none of which had ever received medical attention), three cases of impacted wisdom teeth with extensive inflammation, and in two cases suppuration. In all of the above cases, I informed the surgeons of the necessity of treatment and what I would have done for the same in my private practice. Out of the 200 men spoken of, there were seven totally incompetent to masticate their food and a number only partly competent to do so.

The First Rhode Island Regiment and the Second Tennessee Regiment were stationed in Columbia for a short time, and during their stay here I inserted sixty-nine fillings, made five plates, mended three plates and extracted nineteen teeth, all of this work being paid for the patients. I am sure that the other nine dentists in this city averaged as much work among the men of the Rhode Island and Tennessee Regiments as myself.

I have written several articles on the need of dentists in the army (published in *Leslie's Weekly*, *Army and Navy Journal*, *American Dental Weekly*, etc.), but they were all written before I was as thoroughly acquainted with the subject as I am to-day.

If each dentist would urge the senators and representatives for his district to give their generous support to the army dental question, the blessing of proper dental attention to the defenders of our country would be assured.

Columbia, S. C., January 10, 1900.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

A regular meeting was held in the Stewart Building, October 3, 1899, with the president, Dr. Garrett Newkirk, in the chair.

Dr. Florence E. Thompson read a paper entitled "Dental Education of the Laity."

DISCUSSION.

Dr. E. M. S. Fernandez: I had the honor and pleasure of reading the paper of Dr. Thompson a few hours before this meeting, and I find that she has covered the ground so thoroughly that there is very little left for me to say. Nevertheless, there are some points which come to my mind that I may refer to. No doubt, the public at large need a great deal of instruction in dentistry, and this instruction is necessary for two purposes. First, for their own personal interest, as they are sadly in need of it, and, secondly, for their own personal health. We do not get the proper assistance from the public, whether it be the intelligent or unintelligent. The doctor spoke about malpractice. It is too bad, but it is a fact that many of our fellow practitioners seem to get into a channel of teaching people how to wear gold crowns that are easy to make and very inexpensive. Twenty-five to fifty cents expense will make a gold crown, and perhaps there are some dentists who can put three or four crowns in a mouth in a couple of hours—crowns that are so hideous looking that it is a disgrace to the profession. If those members of our profession would think for a moment and spend a few hours in the study of prosthesis, they would find it would pay them tenfold in reputation and in the satisfaction they would get by doing good to those who patronize them.

With reference to infirmaries, an infirmary was started in Chicago some years ago; but it was not an infirmary very long. It became the Chicago College of Dental Surgery. It was a good change. Probably this college has done more good than it would have done had it remained an infirmary. However, I believe we need an infirmary. But it should be run as an infirmary. As the doctor said in her paper, a free dispensary, not for fees, but for benevolent purposes. We have in our city a lot of poor people who are able to pay very little, if anything, for dental work; they are deserving and sadly in need of dentistry. Of course, it is not to be expected of me to stand here and dictate to some of the older men of the society how they can go to work and put into action such a thing as the instruction in dentistry to the public, but I dare say can offer some suggestions in this subject. I believe through our public schools a good deal of good can be done to these people. There could be a teacher in of each school who can devote a certain time each week to teach children how they should take care of their mouths, why they should do it, and what they should do it with. I do not believe that we can instruct the older, unwilling people very much, particularly those among the ignorant classes. I divide them into two classes. First, that class of people that are anxious to learn; second, that class that will not learn, no matter what you do. If they are not willing to acquire instruction, you cannot make them do so. If we take the children and tell them how to take care of their mouth, how and why they should do it, I think by so doing we can accomplish great good. I believe a great deal of good work can be done also in kindergartens, and I know of one kindergarten where excellent work has been done already with very gratifying results.

In regard to the matter of what to teach children, the main thing is to teach them the care of the teeth, how to take care of them, and what to take care of them with, and the next thing is to teach them why they should care for them. I believe in teaching children by reasoning and kindness. I have in my practice several grown people who, when they were children, were taught to take care of their mouths and teeth by their parents through kindness and reasoning and I was the one in the first place to suggest it.

There was one point in the paper of Dr. Thompson which impressed me very strongly, and for which I am largely indebted to the Chicago Dental Society. She said that "no successful dentist was justified in thinking himself only self-made." That is a very truthful statement. I have often thought of the time (about twenty years ago) when Dr. Brophy and Dr. Harlan were kind enough to ask me to become a member of the Chicago Dental Society. I was only a young fellow then, and unfortunately for me I thought I knew all there was to be known. But thanks to these gentlemen, I became a member of the Chicago Dental Society, and I know nothing that I can do to-day in return to the Chicago dental profession to repay them for their kindness and the good I have received from all. Any man who thinks he is self-made is sadly mistaken. If he will weigh his knowledge, he will find that the larger share of it was received from others. I think the dental profession is not only willing to do all it can to instruct the laity, but they are ever willing to help them personally to acquire knowledge in regard to dentistry. All we need now is to push the matter a little further and put it into execution.

Dr. A. C. Hewitt: It is with some diffidence that I rise to add anything to the able paper that has been read by the essayist this evening, and to the able discussion that the paper has received by the gentleman who has preceded me. Still there are so many things that crowd upon the minds of those who have passed the meridian of life, and so many changes have been wrought in dentistry during the last forty years, that I am induced to add a few words to what has been said. In the first place, I wish to unqualifiedly praise the essayist for her effort. She has used plain English words, avoiding any difficulty to understand what they mean, and she has given us a condensation of thought which is alike creditable to her and pleasant for us to listen to. I must say, also, that she has displayed an unusual amount of shrewdness in the handling of the topic. When I first received notice that this paper was to be read and the subject of it, it struck me the laity meant people outside of the profession, and perhaps that was in the minds of those who framed the word laity. But as no definition has been given to it, and she shrewdly has used it as applicable alike to the members of the dental profession, who hold no offices, but are in fact the lay people of the dental profession, the topic, as she has handled it, is germane, and the scathing sarcasm which she has applied to dentists, not unjustly at all, is well put, and she cannot very well be brought to task for it, because it is to the laity she has spoken to-night with most forcible words. It is of that portion of her paper that I wish to say a little more. I wish to quote briefly. "On the streets, in public conveyances, at social functions, everywhere one is constantly being shocked by outraged nature, not only from lack of dental care, but alas, too often the result of it." You and I know that is true.

A few weeks ago, while I was at Waukesha recuperating somewhat, I sat at the dining table by the side of a lady about twenty years of age. By her side sat a gentleman who was dignified, stately, well cultured, well preserved, of about seventy-eight or eighty years of age. The lady was the wife, and the gentleman was her husband. He, with all the fondness of age, had taken her to one of the hostelries in this city—I will not name it—and selected a dentist to operate upon his young wife's right front incisor. I do not know the name of the dentist that operated on her. I did not ask, I was ashamed to ask; but he had charged an honorarium of $10 an hour, devoting something like six hours, and as many sittings, operating to whiten the front tooth. When I looked at her, the first thing that attracted my attention was a front tooth, the color of which was a cross between verdigris and burned umber, I should judge. I am not here to say that that dentist charged too much when he charged $10 per hour. If he had done his duty well and faithfully and skillfully, it might have been worth two or three times that amount; but to leave it in that condition in that young wife's mouth—it was a burning shame, and the man who would take $10 per hour for not doing what he professed to do is no better than a robber, and the language the essayist has used in her paper is well put. I thank her personally for that rebuke.

To-day, in coming down on the street car, I saw at one end a young woman, about twenty-two years of age, with bright and beautiful eyes, a beautiful complexion, with a well formed nose and mouth. In short, she had all the features of a beautiful woman. In speaking to a friend she opened her mouth and displayed a whole lot of what I call crockery ware, a more disgusting set of artificial teeth than I have seen for many a day. Somebody, who professes to be a dentist, put those into her mouth and made her a caricature of what she ought to have been. The laity in the dental profession should be educated up to the point that these things could not be done. Such work should be so frowned upon and talked about here and there as to be made impossible. There are other things the essayist has touched upon, and one was the infirmary.

I have had my sympathies very keenly aroused from time to time, and hardly a day passes but what I see a child, a poor woman, or a poor man who has not half a dollar to pay for having their teeth fixed, and I wish from the bottom of my heart that a true dispensary might be established, so that the ills and pains of these poor people might be assuaged. Now, it is said that the dental colleges ought to do this. I hold a different view. Dental colleges, like literary institutions, like manufacturing establishments, are organized for mercantile or commercial purposes. It is not to be expected that Doctors Harlan, Brophy, Menges, and other dentists who are connected with institutions, shall put their hands into their pockets and buy cements, alloys, and the necessary materials for a dental office, and give freely to the public. It should not be asked of them ; but, as the essayist has said, an endowment should be given the same as for other infirmaries.

With regard to the education of the laity, whether of the dental profession or of the people outside, it is not appropriate for me to give my theories, because it would consume too much of your time, so I shall not do that. Let me express the hope, however, that in our common schools dental matters may be taught in the line of physiology, suited to the minds of the children. Or, let the matter be published in attractive form and made a part of the study in the public schools. I think that could be easily accomplished.

Dr. FLORENCE R. ATKINSON: I do not think there is any better way to educate the laity or the people at large than to begin with the children, and, for my part, I never lose an opportunity with the children who come under my treatment to impress upon them the necessity of the care of their teeth from the earliest time they come to me. Of course, women are supposed to handle children better and more delicately than men, and on this account we probably have more than our share of them. I may say that I have some little tots under my care that are only three years of age, and I find the little ones, when once instructed as to the care of the teeth, do not neglect them. We ought to impress upon the minds of all how necessary it is for the laymen to be educated in this way. We know that if people take care of their teeth for a year, or even six months, there is a noticeable difference in the condition of those teeth. Daily people come to us and say, "Why, I usually brush my teeth after every meal, and I take care of my mouth; I am cleanly." We know very well in looking into the mouth whether they do this or not. They may say they brush their teeth and take care of them, but they do not do it; and it remains with the dentist to tell them how to do it, and it cannot be done better than by beginning with the children. To illustrate, some two years ago I was asked to lecture before a girls' club, whose ages range from fourteen to eighteen. Previous to my talk there had been a number of professional people asked to speak to the club on hygienic subjects, etc., and they had never been able to entertain these girls. They would not give them the proper attention, and the lectures were failures. I had been told as much by the president of the club, and I said to her, "Why do you ask me to do something in which others have failed?" She said, "I think if you will tell the girls how to take care of their teeth they will give you their attention, because you know as well as I that the teeth are marks of beauty, and girls wish to improve their appearance more especially than the boys." I thought the matter over for several days before I made any reply or accepted the invitation to speak to the girls. I finally decided to do so, and I faced the club with fear and trembling. I had decided to talk to them on "The Care and Preservation of the Teeth." I divided my talk into different headings, arranging it so that I might give half of the subject matter one week, and, if they cared to hear the rest of it, give the next at the subsequent club meeting. I had the closest attention of every girl in that club, because I talked to them in a way that would appeal to them as to the care of their features in order that they might be beautiful. I began with the eruption of the temporary teeth. When half through the lecture, I asked them if they would not have the latter part of it continued at the next meeting, and I received a unanimous invitation to finish the talk that evening, and inside of one week I had three or four different members of the club at my office for professional services, and I did not talk to them in an advertising manner either. But so much for talking to the children. My object in rising was to lay stress on that part of the paper which deals with the education of the laity, believing, as I do, that they cannot be better educated than by beginning with the children.

Dr. A. W. **Harlan**: I do not know that I have anything special to say except that I have been trying to educate the laity for the last few years in Chicago. I was interested in that part of the paper which referred to the education of the laity, but the part dealing with philosophical reflections does not belong to it. A great many people boast of being self-made, but the man or woman who thinks that he or she rises from a sterile spot and acquires all the information, ability and ingenuity without relying on other people, is a top-heavy, unbalanced, and spiral-like individual. I do not know what we are going to do about these glaring gold crowns and the little bits of teeth in the mouths of broad faced people. A great many dentists have no artistic perceptions themselves, and as long as the public will employ them I suppose they will have to wear such crowns. I think it is a shame for any dentist to put a gold cap over an incisor tooth, or a cuspid tooth, or in a great many instances over a bicuspid tooth. Here and there we might have a case where there was a long upper lip and the teeth are short, and in such a case it would be justifiable; but it is a rather rare thing that these conspicuous, glaring gold teeth should be used. I think the world will regulate itself after a while.

All of the reforms we think of now, fifty years hence will be looked upon as small blots on the civilization of the present. If we go back in history of medicine or surgery, or the art of portrait painting, or the art of painting landscapes and figure pieces in general, we will see the great improvement that the taste of the present has picked out to make lasting the pictures of real art scenes. The first time I went to Europe, twenty odd years ago, I remember visiting various picture galleries. One man had decorated thirty or forty galleries with Adam and Eve, and they were the scrawniest and most woe-begone looking pair I ever saw in my life. These dated back two hundred and fifty or three hundred years. Finally I came to representations of Italian and Dutch art, and found the figure pieces were much better, showing that with intelligence, appreciation and education of the people, these creations were possible. At that early time the artists who painted these execrable pictures did the best they could. After a while somebody came along that did much better. It is not more than twenty years ago that we commenced to think a great deal of the porcelain crown and of esthetics in porcelain, etc., and this is growing. After a while, it will be reasonable in price, so that almost every dentist can do creditable work in that line. At present perhaps, it is cheaper for the ordinary individual to make a gold cap and put it over a perfectly sound tooth that ought to be filled than it is to fill it. I have taken off many such. As soon as the public becomes educated to the fact that those things are vulgar, and that they had better be hid from view, they will demand even of the most indifferent dentist that he do something else than cover his or her teeth with such gold crowns.

With reference to little children, I have adopted a system in my practice which has grown from year to year in taking care of children. Whenever a child is brought into my office I soon get acquainted with it as well as I can, and if it is not a good plan to do anything that day, I do not do it. I send the child away. I prefer to have the child come with somebody else than its mother or father, so that I can have a free field and full sway. By the time I get through with the child, I have got it under my control, so that I will see it in three or four or six months. I have an understanding with the parent or guardian of the children I see, consequently there are children who are growing up all the time whose teeth need to be regularly cared for, and as soon as the parents or guardians are willing that something of the kind shall be done, it is done. Those children do not have any dead pulps; they do not have their incisor teeth covered with gold caps, or the first permanent molars either. It makes no difference if we put in two dozen cement fillings and they wash out, we put in more, and we do everything to preserve the vitality of the teeth, if possible.

I wish to say to the young dentists that if they want to work up a practice and hold it, they must devote a good deal of attention to the children. They must get hold of the young people growing up all around them, as it is these who will furnish them business. I am now working for grandchildren where I commenced with the young ones, and in many cases people that came to me eighteen or twenty years ago are now married, their children are married, and I am working for their children. Every man should do his part toward educating the laity in the community in which he lives, and let somebody else do it in another community, or do it together. In the neighborhood of Kenwood the people seem to have good looking teeth; and so I judge the members of the profession who reside in that district are trying to do something to educate the people around them. Do not tell people when you put in a filling it is going to last forever, because it is not so.

Dr. C. E. Bentley: I believe, as Dr. Harlan and others have indicated, that individual effort toward the education of the laity is very good, but it is unhappily and unfortunately confined to the individual. It needs more than individual efforts to educate the laity in dentistry. It needs more than the combined efforts of the Chicago Dental Society and of every intelligent, well meaning and well disposed dentist to educate the laity in the community in which they live. It is a startling fact that only about twenty per cent of the people of any community have their teeth attended to; the other eighty per cent are uncared for in a dental way. The gentlemen in this room and in this city are living upon twenty per cent of the people who have their teeth cared for. How can we get at the other eighty per cent is a question that concerns you and me. It needs organized effort plus individual work to get a portion of that eighty per cent. How can it be done? I believe it can be done in getting at the school children. This is a subject that I have been interested in for the last six or seven months. If it is possible to get at the school children, it is likewise possible to get at the parents. I recall a little story that illustrates this point. A growing plant was given to a poor child, who took it to her ill kept home and placed it on the window sill. The brightness and freshness of the flower made the window glass look so bad, by contrast, that the mother of the little girl cleaned them. Then the bright, shining glass made the dirty woodwork look so very unclean that the scrubbing extended to that portion of the room. Then the blackened walls were in such horrible contrast to the freshly cleaned wood that a coat of whitewash was soon applied, and so on, until in time, from one thing to another, what was once an untidy, unsightly apartment, became a neat, wholesome, homelike place—all resulting from that first introduction of one little element of beauty.

So, I think, it is quite possible that in getting at the children in our schools, while their minds are in a plastic and impressionable state, we can reach the parents and in the end this influence will reach out through the other eighty per cent, of which I have spoken. The Odontographic Society has done something along this line in an organized way, and in a few weeks a communication will be sent to the dentists throughout the city of Chicago to make known the result of its work. I can epitomize the work by saying, that every civilized community in the world has been communicated with and responses have been received from them. The responses are with reference to a series of questions asking if there has been any organized effort on part of the dentists of the country, to which the circular was sent, toward caring for the teeth of children in the public schools, and if the board of education recognized any dentists officially. The answers are surprising, in that, strange to say, in some remote parts of Europe, even as far as Japan, they have looked into the subject more thoroughly, and with a great deal more beneficence than we have, and there are a number of cities throughout Europe that have undertaken in a systematic way the caring for and looking after children in their grammar school departments. These results of investigations will be presented to the Odontographic Society in a short time. In this country comparatively little has been done thus far, although the matter is being advocated. The society of the State of Wisconsin has burst into enthusiasm over the matter and is organizing in cities and is writing for information as to methods of work. Now, I think it is high time that every dentist, male or female, who has the interests of the profession at heart, and who has the interest of the education of the laity at heart, should lend a hand in this splendid work that is budding forth in Chicago. Two papers of the city have virtually guaranteed the use of their columns when we are ready to use them. Several members of the Board of Education have pledged their support in this matter. The present personnel of the board is most favorable. All this makes the happiest combination with which it is possible to get such legislation as this through. I appeal to all those who may have any influence with the members of the Board of Education to at least speak a good word for this movement. We do not desire to have this movement aborted, we desire to have it concentrated and well organized before we go to the Board of Education, who have power to grant our request. We need organized effort, and I trust you will give the idea your support.

Dr. EDMUND NOYES: Can you inform us on what basis you compute that there are eighty per cent of the population who entirely neglect their teeth?

Dr. BENTLEY: I will refer Dr. Noyes to Dr. Brophy, who has looked up the literature on that subject. Dr. Brophy is my authority for this statement.

Dr. NOYES: Do you understand anything about the nature of the facts or data on which it was based?

Dr. BENTLEY: I do not, but Dr. Brophy does, and he will be able to tell you about that.

Dr. B. J. GIGRAND: In regard to the question under consideration this evening, there is an effort on foot in Germany in which you will be much interested. In the July number of the *Correspondenz-Blatt*, of Germany, which contains the proceedings of the twenty-fifth annual meeting of the Schleswig-Holstein or North German Dental Society, there is given the report of Dr. Greve and a corps of reputable dentists who visited a large number of cities throughout the northern portion of Germany, and examined the mouths of upward of 20,000 school children, ranging between the ages of six and fifteen years. The results of their investigation will be interesting not because there is any particular scientific data, but it gives the drift as to what extent caries is prevalent in Germany; and also incidentally answers the question as to the percentage of people who receive dental education and dental attention. Out of the 20,000 school children examined, 1,500 children presented absolutely sound teeth. We have been led to believe that the Teutonics suffered little caries, but these figures demonstrate that the German race is not possessed of sound dental organs; about 1,300 used the toothbrush; 218 children presented teeth with fillings; 36 presented fractured maxillæ; 1 case presented congenital syphilis; 4 cases of harelip; there were missing something like 6,500 permanent teeth. There were presented also nearly 40,000 cavities. The decay was more prevalant in the girls' than in the boys' teeth. It was observed that the left upper teeth were invariably decayed and the right lower ones, in both the girls' and the boys'. The percentage as figured out, is that about ninety-two per cent of the boys' teeth were decayed, while nearly ninety-five per cent of the teeth of the girls gave evidence of dental destruction. Two hundred and eighteen had their teeth properly looked after, and this leads us to note that a trifle over one per cent of the 20,000 received dental attention. In our work as suggested in our paper, we have the same thing to contend with. and it holds true in America as well as in Germany; and I for one doubt seriously whether twenty per cent of the population of the United States receive dental attention. Having an occasional aching tooth extracted and not having the remaining dental infirmities attended to, cannot be considered as receiving oral care. I do not believe it would reach as high as fifteen per cent. There is here an opportunity for us to do considerable missionary work. A similar investigation might be prosecuted in our nation; and it seems to me that this society could do nothing better, more noble and humane, than to assist Dr. Bentley and the committee from the Odontographic Society in carrying into effect the idea of lending our aid in caring for the teeth of poor children.

As to college infirmaries, there is no use at this time to discuss, since under existing circumstances these institutions are doing all that can be reasonably expected. Much work remains to be done along this line and many reforms must be inaugurated before we can affirm that we are doing our common duty.

Dr. E. M. S. FERNANDEZ: This discussion has taken a peculiar trend since Dr. Bentley spoke. I do not believe in teaching any one, either young or old, the habit of getting dentistry or anything else for nothing. Probably the right thing to do is to teach children that they must meet their obligations the best way they can, but they must meet them.

Dr. C. E. BENTLEY: I do not want Dr. Fernandez or any other member of this society to confound this matter of establishing a free dental service in the public schools with another movement that has been started in this city. One is under the direction of the Associated Bureau of Charities, where children pay a small sum for the filling of their teeth. This is another movement entirely, the object of which is to get dentists in the public schools of Chicago for the purpose of teaching children how to care for their teeth, and to check, in the beginning, irregularities that might prove mischievous if left unattended.

Dr. THOMPSON (closing the discussion): I have only a few words to say. The members of the society have dealt so kindly and courteously with my paper that there is practically nothing to defend. I desire, however, to speak upon one or two points. I can hardly agree with Dr. Harlan that things will right themselves without united effort. Individual effort is essential but concerted action will accomplish the result much more quickly. With both the reform will still be slow.

I agree with Dr. Fernandez that the giving of something for nothing is not the *best* thing to do, but "the poor ye have always with you," and so long as the condition continues we shall need free infirmaries for dentistry as well as few dispensaries for medicine.

A regular meeting was held in the Stewart Building Tuesday, November 7, 1899, with the president, Dr. Garrett Newkirk, in the chair.

Mr. G. E. Lob read a paper on "The Storage Battery in Dental Offices."

The discussion was opened by Dr. J. E. NYMAN, who said: This paper is really beyond adverse criticism, and such a state of affairs might well be expected, because Mr. Lob is a careful, cautious, conservative man. He seldom makes a rash statement, because he knows what he is talking about. There is very little I can say except to emphasize a few points, then give way to Dr. Keefe, who has, I believe, some original matter to give us. In the first place, I would like to ask Mr. Lob if it would not be better to speak of these batteries as developing electricity. They do not generate the electricity, because the electricity is there in a latent state. Electricity was generated when the world was made. The electro-motive force of a primary battery depends mainly upon the nature of the two plates used. It depends upon the specific electro-motive potential which is developed by chemical action. For instance, in a battery having a zinc plate and a copper plate, we would get, under the best conditions, a voltage of from eight-tenths to one and two-tenths. If we substituted a plate of carbon for the one of copper, we would get a voltage of nearly one and a half, because of the difference in the specific potentials of electro-motive force.

An erroneous idea which is prevalent is that electricity is stored up in a storage battery. This is not so. It is merely chemical energy. The current has changed the chemical conditions.

The current being shut off and a circuit formed, the chemical action starts in again, and a countercurrent is established.

Another thing, storage batteries and dry batteries have nothing in common, and yet a gentlemen told me one day that they were identically the same. Another man wished to sell me some dry batteries, and in the course of a conversation he told me that it made no difference as to the size of the battery, as it depended entirely on the amount of electricity that went into it as to what came out of it. Nothing can be more erroneous.

As regards the size of the batteries, the electro-motive force of a battery will be the same, whether big or little, with the exception that a large battery will give off a current for a longer period than a small one. There are some merits connected with storage batteries, or they would not be in use. The rate of flow of any ordinary insulated current from a storage battery is uniform; the electro-motive force is constant; when the cell is a high power one should get an electro-motive force from a storage cell of two volts, whereas you cannot get more than one and a half from any of the primary batteries. Furthermore, there is a steady flow of current, there is no interruption of the current as there is in the case of primary batteries. Then, again, almost all of the primary batteries polarize, that is, they shut off the flow of current. This is not the case with the storage battery. There are no fumes arising from it, which is one objection to the use of primary batteries. There is no local action. The chemicals do not react on one another. In the primary batteries the plates are being constantly attacked by the chemicals of the electrolyte. There should not be this chemical action except when wires are fastened to the plates and a circuit is established.

Then, another thing, there is no loss of material in a storage battery. The plates have not to be renewed from time to time if the battery is reliable and properly cared for. This is not true of a primary battery; there is a constant loss of material all the time. Storage batteries are especially advantageous where power cannot be obtained from a city plant or building plant, or in cities where there is no current during the daytime, or in towns where there is an alternating current, as you cannot do very much with that current. Motors are made to run with such a current, but they are unsatisfactory.

Lastly, in towns where there is no electricity at all, you must depend upon storage batteries because you cannot make the primary batteries that are required to supply the necessary current for all electrical apparatus.

Dr. J. E. KEEFE: Dr. Nyman mentioned in his preliminary remarks that he would leave something for me to say, but he has covered the ground so thoroughly that there is little that I can add.

Mr. Lob stated in his paper that we were in the dark regarding certain points in connection with the use of batteries. I am sorry that he did not conduct some experiments and demonstrate the subjects he had in mind. Many of the terms used are foreign to most of us, and when we hear such expressions as "shunts," "electro-motive force," "buckling," "grids," etc., we do not all understand them, nor the chemical changes which take place.

While Mr. Lob was reading his paper I managed to secure some wire, lead and sulphuric acid, and with these we can make, I think, a storage battery, or at least give a clearer conception of how a storage battery is obtained.

I will put into this glass of water some of the sulphuric acid. These pieces of lead are bent so that they hang over the side of the glass and extend into the solution. We will screw the plug into this socket, attach one end of the wire to the lamp and place the other end of the cord on the piece of lead. Now, by placing the end of this lamp with the wire attached to the other piece of lead, the lamp will light, and we have a current passing through this solution charging the lead plates and making a storage battery. You will notice when I remove these connections that one of these plates will be dark brown in color and the other light gray. The dark piece will be the positive pole and the light gray the negative. On the positive plate is deposited the persulphate of lead, which is known as the active material and referred to by Mr. Lob in his paper.

This method of making batteries is not commonly used because of the expense attached.

Storage batteries as we get them are made with the persulphate of lead, or red lead, as it is commonly called, already placed in holes made in the grid and then the current is passed through these plates when put in the sulphuric acid and in a short time they are charged.

I make this simple experiment to give you a better understanding of what the "active material" is referred to by Mr. Lob in his paper, and how it is obtained.

I brought with me to-night a grid which is something new and an improvement on those now in general use.

Buckling is prevented by placing a piece of wood between two pieces of lead to hold the lead firmly in place so that they cannot bend. The red lead is placed in these holes (illustrating) which are made larger on the inside than on the surface, to prevent the active material from falling out, and they protrude from the surface of the plate so that the fluid may pass through the surfaces of the plates. They weigh a third less than any other plate of the same size and have a third more in capacity.

Mr. G. E. Lob: The plates of the American Battery Company's cells are made from a solid piece of lead (illustrating), into which are cut small grooves on both sides, leaving a strong support or backbone in the middle. Then the plates, after being treated by a chemical process, are subjected to the electrolytic action of a current and thus the active material is formed. The process is a secret of the manufacturers and they claim that the active material is more adherent than with any other type of storage cell. The great number of grooves on both sides of the plate assure a large surface without weakening the whole frame.

About the chloride accumulator I will say this: It is manufactured by one of the largest storage cell manufacturers in the world, the Electric Storage Battery Company, in Philadelphia. Their immense capital and close connection with electric light and traction companies enables them to install large storage battery plants all over the country, and it may be interesting to you to state here, that in most of our largest cities, storage battery plants are used as auxiliary to the regular light and power generating plants. The demand for current in central stations varies largely at different periods of the day, but as economy of operation demands that the engines and dynamos be worked at or near their full capacity, these conditions can both be met only by dividing the machinery into a large number of small units or by having some system of storing electric energy. Such storage battery plants are installed according to one of two plans as follows:

The dynamos and engines are not capable of carrying the full current required at certain parts of the day, for example in the evening, but are of a size sufficient to furnish the current for the average rate required during the twenty-four hours. In this case accumulators are installed which have a capacity sufficient to furnish the required excess of current over the average. At times when the output of the station is less than the average rate, the current is used to charge the accumulators.

The second plan is to install accumulators of sufficient capacity to furnish all the current of the station for a part of the day, when the output is less than the average; in this case the engines are shut down for a considerable part of the day, the accumulators furnishing the entire output of the station during this time. When the demand for current begins to increase, the machinery is started up and then furnishes the entire output of the station for the balance of the day, charging the accumulators when the station output is less than the capacity of the machinery· The Chicago Edison Company has one of the largest auxiliary accumulator plants for this purpose, which has cost them nearly $150,000, and New York, Boston and Philadelphia have part of their electric current furnished from similar installations.

The plates of the chloride accumulator are made in the following way: A mixture of zinc chloride and lead chloride is melted and run into molds, which form it into cylindrical pellets which have a bevel shape edge, being thus larger in the center than at the faces. These pellets are placed in a second mold, being held in position by steel pins and an alloy of lead and antimony is melted and forced in betwwen the pellets under heavy pressure. When this cools it forms a plate, binding all the pellets together. The plate in this form cannot be used in an accumulator; it has to undergo a different chemical or electrical treatment according to its use as a positive or negative plate before it becomes suitable for its purpose. The claim is that the pellets cannot fall out on account of their peculiar shape and thus form a short circuit, but as you can see from the sample (illustrating) the pellets expand and bulge out in such a way as to peel off gradually, and if weakened in the center, fall out entirely, thus forming a short circuit. The great point in all storage batteries is to have as large a surface of lead as possible exposed to the chemical action of the electrolyte and in the same time prevent the plate from buckling. This is one of the reasons why storage cells are so heavy.

When I presented this paper I did not expect there would be time enough for me to give you a series of experiments to enable many of you to understand some of the technical terms much better, but at any time in the future, should you desire, I will be willing to devote an hour or two to demonstrations of this kind.

Dr. W. H. TAGGART: Will you kindly explain, Mr. Lob, how electricity is produced? You say it is done by the chemical action. Am I right when I make the assertion that the electrolysis which takes place separates the water into oxygen and hydrogen, the oxygen going to one plate and hydrogen to the other? The spongy materials in the negative plate have an affinity or tendency to absorb great volumes of the gases when the poles are connected. Is not the electricity generated by the action of the oxygen and hydrogen uniting again?

Mr. LOB: There are different theories with reference to the action that takes place in a storage battery, and the theory adopted by most scientists is the one mentioned by Dr. Taggart. A new theory of the electro-chemical action in storage cells has been proposed by Dr. Paul Schoop, based on the facts that certain metals, as platinum, palladium, mercury and iron, combine under certain conditions with hydrogen and on the theory that hydrogen is a metal these combinations are regarded as alloys. It is also well known that when platinum sponge charged with hydrogen is exposed to the air it becomes rapidly heated to redness by the absorption of oxygen; also, that the cathode plate of an accumulator when similarly exposed has its temperature raised from the same cause, often to the melting point, hence Dr. Schoop assumes that the spongy lead of the cathode, or negative plate, like the platinum sponge, absorbs the hydrogen liberated from the electrolyte, the hydrogen combining with the lead in forming an alloy, and the liberated oxygen combining with the material in the positive plate and forming the lead peroxide. During the discharge the oxygen liberated by the current from the peroxide combines with the hydrogen of the negative plate, reducing the alloy to spongy lead and restoring water to the solution, leaving the material in the positive plate with the same proportion of oxygen as before charging. This theory is simple, but defective, as it fails to account for the formation of the lead sulphate and its varying proportions during the charging and discharging.

Dr. Gunther: What about the scheme of the Englishman for charging batteries?

Mr. Lob: You mean the thermo-generator. As I stated in my paper such instruments have been used in Europe quite successfully to charge small storage batteries, and do neither require great attention nor is their operating very expensive. The only possible trouble is in the increase of internal resistance by a disintegration of the joints of the thermo-electric elements. Mr. Ballinger Cox, an American, constructed and sold in England a thermo-generator where these joints are cast together under a very high pressure, thus trying to avoid disintegration of the joints; but if the water supply, which is to keep the outside of the instrument cool, should be shut off while the generator is working, it will nevertheless injure the instrument. Some of the Cox instruments, which are now made in New York, have been used in Chicago for over a year, and so far as I know have given good service. The only trouble with them is that they do not generate enough current to charge more than two cells at the time. It has been tried to charge more cells in connecting them in multiple, but the distribution of current among the different cells was not even, so that two cells perhaps received about ninety-five per cent of the total current, while the rest did not get more than five per cent of the charge.

Dr. Woolley: Before I moved to the Reliance Building I used electricity in my work, and I believe there is some way of testing the amount of current or electricity that is used. I forget what it is called.

Mr. Lob: By the amount of deposit.

Dr. Woolley: The man who furnished the electricity said he could determine to a certainty how much was used. Some months I used more of the electric current than others. I did not have a fan at that time, and I was using electricity for two or three months. They charged me a dollar a month. I then had a fan, and the man did not know it, and he charged me a dollar a month just the same. He said he could determine the amount of current used by the loss in chemicals.

Mr. Lob: There are what we call chemical meters in use which work on the amout of metal deposited at the cathode by the electric current in a given time. For instance, if a solution of copper sulphate is used, the decomposition of the liquid by the current will cause a deposit of copper on the negative electrode. The weight of copper deposited in a given time is proportional to the current flowing.

Dr. Woolley: You have not quite explained my point. I used my current from morning until night.

Mr. Lob: A meter of that kind consists of a jar containing a metal salt solution and two electrodes. When the current from the line goes through the electrolyte and decomposes it a deposit of the metal used in the solution is made on the negative plate or cathode which as I said before is proportional to the amount of current flowing. The exact weight of the cathode is taken before the jar is connected to the line and the same plate when weighed after being exposed to the current, will show the amount of metal deposited.

Dr. Woolley: I paid right along a dollar a month.

Mr. Lob: That is a minimum charge.

Dr. Woolley: That was when I used my fan, and they did not know that I had it, and they still claimed they could tell how much current was used by the chemicals alone.

Mr. Lob: They make a minimum charge of one dollar a month whether you use that much current or not. Your fan motor may not have taken more current than an ordinary sixteen candle power lamp or perhaps less.

Mr. Lob was called upon to close the discussion. He said: I do not know that there is very much to say, as Dr. Nyman has brought out all the points I did not mention in my paper. I did not want to go too deeply into the matter of storage batteries, but I tried to condense my paper as much as possible in order to bring it within the reach of the members. I trust when my paper is printed, that it will serve as a guide to dentists, especially in small towns. If you will look through the text-books, I do not think you will find in any one of them any practical points with reference to handling storage batteries, particularly points which you can utilize in connection with these batteries in your office. Of course, you can get from text-books information how to handle large plants and how to charge batteries where they are connected with central stations, but you will not find information of a practical nature such as you want for your own small outfit. In case of trouble you want to know what to do, and I have endeavored to give you such information as you can utilize in that way. Should you wish experiments conducted along this line at some future time, I shall be pleased to appear before you and conduct them. I thank you.

Dr. L. Arnold: The Edison people use two sizes of meters. One, the light meter is left on your premises on condition that you pay $1 per month as a *minimum* charge and entitles you to use electricity equal to 100 lamp hours (sixteen candle incandescent lamp hours as they put it). Over 100 lamp hours you pay one cent per hour—*supposedly*.

The other meter is the power meter with a minimum charge of $3 a month and minimum allowance of 500 hours, I believe. I am using a light meter and every fall as the days lengthen my bill lengthens more. Then I write the electric company that I am using power—not light, and consequently my bill should not be increased. They invariably write me that they "have carefully verified the weights and computations and assure me that my bill is correct or even a little in my favor and also as I get my power through a light meter I am very much the gainer and so should not complain."

They never admit an error but the next month the bill is back to the dollar mark again.

Report of the Seventh Annual Clinic of the Alumni Association of the Chicago College of Dental Surgery, January 17, 1900.

By L. S. Tenney, D. D. S.

DR. T. W. BROPHY, CHICAGO.—SURGICAL CLINIC.

Case 1. Patient, Fred James, male, thirty years of age. Complaiins of severe pain in region of antrum, left side and over eyes. Nine months ago had upper left first molar extracted, which was decayed. Pain still continued and discharge from antrum profuse.

Operation. Patient placed under anesthetics. Opening made above bicuspids and first molar with large drill in engine. On examination find large amount of polypi, which was removed and antrum curetted.

Treatment. Pack cavity with iodoform gauze, wash daily with mild solution of boracic acid. Later fit gutta-percha plug and dispense with gauze.

CASE 2. Patient, Mrs. Lamcyk, woman forty-five years old. Growth of left temple. First noticed about twenty-five years ago. Has had two operations; growth reoccurring. Last operation about three years ago. Growth now about the size of walnut.

Diagnosis. Cyst.

Operation was made reflecting back tissues and removing sac in its entirety.

Treatment. Keep antiseptically clean, etc.

DR. C. S. CASE, WITH HIS PRIVATE PRACTICE ASSISTANTS.

Made a six-band regulating apparatus from start to finish, for a practical case of irregularity.

The time consumed from the commencement of taking measurements for the bands to the final cementing of the apparatus (which was made of German silver, gold plated) was one hour and forty minutes.

New methods for making regulating nuts, by partially stamping them with a die, was shown.

DR. G. D. SITHERWOOD, BLOOMINGTON, ILL.

Aluminum plate suggestions. A most interesting table clinic was given, showing manner of swaging aluminum with valuable suggestions regarding rubber attachments, finishing, etc. The doctor believes that this material has not been given the consideration that it deserves.

DR. S. R. HOLDEN, DULUTH, MINN.

Patient, G. W. Slingluff. Filling of mesio-occlusal cavity in upper first bicuspid.

In the preparation of the cavity the principle of "extension for prevention" was beautifully illustrated.

Buccally and lingually the cavity was extended far enough to insure perfect cleanliness, while the seating and anchorage of the filling were such as to render dislodgment practically impossible.

Perfect contact was secured by a well rounded and contoured filling.

DR. W. V.-B. AMES, CHICAGO.

Demonstrated his "new process oxyphosphate of copper cement" which has all the virtues of his original oxyphosphate of copper with the advantage of not requiring the special manipulation of that material. Remarkable hardness with quick setting from application of heat was shown.

DR. E. K. WEDELSTAEDT, ST. PAUL.

Patient, Dr. E. S. Fuller, Piqua, Ohio. Operation, filling mesio-occlusal cavity in left upper second bicuspid with gold. Measurement of tooth: Length, gingivo-occlusally, 6.4 millimeters; width, mesio-distally, 5.7 millimeters; thickness, linguo-buccally, 9.1¾ millimeters; stress of mastication, 160 lbs. Cavity measurements: Linguo-bucco-gingivally, 6.2 millimeters; linguo-bucco-occlusally, 5.9 millimeters; step, linguo-buccally, 2.7 millimeters; step, mesio-distally, 3.0½ millimeters; anchorage, 2.3 millimeters; seat at gingivæ, 1.6 millimeters; depth, entire, 4.4 millimeters; depth of step, 2.5 millimeters; depth, below step 1.9 millimeters.

The resultant filling was a most beautiful and artistic piece of work in every respect, perfectly contoured, perfectly condensed and perfectly finished. In answer to a comment by one of the onlookers that the contact point was very narrow, Dr. Wedelstaedt made the significant remark, "My dear sir, you *want* a narrow contact on a bicuspid."

DR. E. J. PERRY, CHICAGO.

An exhibit showing method of putting tin foil on model prior to vulcanizing. He uses 60, 40, 20 and 10 tin foil. The heavy he uses where the hard places are found, and he covers the whole model with No. 10. The idea being to so adapt the plate to the ridge and arch that the pressure shall be equalized, having special reference to the thickness of the membranous cushion which covers the bony ridge and arch, which varies greatly in each mouth. Where the mouth is very hard in places he would use 60 tin foil, also by the use of 10 over the whole model a hard and polished surface is secured to the palatal side of the plate. Dr. Perry also showed method of working "Ideal base plate" as suggested to him by Dr. C. F. Bryant, demonstrator of the senior laboratory.

DR. W. W. SHRYOCK, FORT WAYNE, IND.

Dr. Shryock gave a most interesting selection of clinics as follows: Crowning deciduous teeth. Replacing facing on bridge, in the mouth, using gold nuts. Placing facings in crown and bridge work with gold nuts. Bicuspid gold crown with porcelain facing placed with gold nuts. The countersunk nut in orthodontia.

DR. A. D. GRITMAN, BUFFALO, N. Y.

Exhibited an anatomical articulator of his own invention. By means of this the models are held in the same relative position that the maxillæ occupy and in addition it possesses the great advantage of allowing forward and lateral movement. Perfect articulation is thus obtained.

DR. W. H. TAGGART, CHICAGO.

The making of an inlay matrix. This was a clinic full of good " pointers " for those interested in inlay work.

While decrying the injudicious use of porcelain as a filling material, the doctor believes that properly employed, it has a wide field of usefulness.

DR. H. J. GOSLEE, CHICAGO.

Dr. Goslee gave a very interesting and extensive clinic in porcelain work, exhibiting various methods of crown and bridge construction, both in the metal and after the porcelain had been applied ; and then built up, carved and baked fiive practical crowns, consisting of one molar, two bicuspids, one central and one cuspid, using the Custer and Peck electric furnaces.

The work came out beautiful and showed the high degree of artistic effect that can be produced in this work when skillfully manipulated.

An original idea in the shape of a projecting spur of platinum in the metal construction of crowns and bridges for the support of lingual cusps was illustrated in all of the posterior crowns, and without doubt adds very much to the strength of this work in what has previously been a very weak spot, the whole making a very elaborate and beautifully illustrated clinic.

DR. H. L. CRUTTENDEN, NORTHFIELD, MINN.

Exhibited a cement syringe to be used in setting crowns and bridges. After mixing the cement to the right consistency it is placed in the syringe and injected into the canal. It was pronounced by all as being "just the thing."

DR. H. L. BANZHAF, MANITOWOC, WIS.

Step filling in lateral incisor. This method of anchorage was beautifully demonstrated by the clinician. By making a slightly dovetailed extension or step part way across the lingual plate near the cutting edge an extensive restoration was possible. Lateral displacement of the filling could not occur under any normal stress in the closure of the jaws. Manipulation of gold was skillful and rapid, using cylinders and completing with foil No. 30.

DR. C. T. GRAMM, CHICAGO.

Patient, T. M. Mills. Dr. Gramm demonstrated his method of fitting a Logan crown with gold cap.

The work consists in treating the root exactly as for the preparation of a Richmond crown; that is, cutting it flatly to the level of the gum, trimming its emerging edges parallel with the axis of the root, enlarging the root canal sufficiently to receive a Logan crown pin, and cutting retaining grooves with a round bur within the same. A gold cap is made to fit over it, and the top perforated so as to admit the Logan pin. The crown itself is then ground with a diamond disk so as to be accurately adapted to this cap. When all the parts have been fitted the canal is dried and cap and crown are cemented in their places simultaneously.

Ingress of moisture, crumbling away of cement, decay of the root, and ultimate loosening of the crown are effectually prevented.

DR. J. W. SLONAKER, CHICAGO.

Extraction under nitrous oxide. Demonstrating method of administration, and the proper position of operator together with the use of mouth props and extracting forceps.

DR. J. E. HINKINS, CHICAGO.

Patient, Charles Shurtloff.

Operation.—Platinum and gold filling. An extensive contour filling was made in the right lateral incisor. Attention was called to plugger points for this work which should have shallow but sharp serrations. The filling harmonized beautifully with the surrounding tooth structure, being far less conspicuous than gold would have been in the same position.

DR. A. C. SEARL, OWATONNA, MINN.

Patient, E. P. Lawrence. Mesio-occlusal filling in upper first bicuspid. This was one of the most extensive operative clinics of the day. In the preparation of the cavity special attention was called to its " broad, flat base," extension of the buccal and lingual walls and the points of anchorage. A beautiful filling was made starting with unannealed cylinders and finishing with cohesive gold. Finish and contour perfect.

DR. J. E. NYMAN, CHICAGO.

Dr. Nyman exhibited two practical cases in porcelain prosthesis. First, a bicuspid crown on an articulated model, with a facing attached, ready for the application of the porcelain body. This was done to show the relative size and position of the various portions of the crown. After this had been noted by all, the doctor applied and carved the porcelain body, and fused the case in an electric furnace. The shrinkage had been so closely estimated that the crown was complete in one baking, the only change being necessary was a slight grinding of the lingual cusp.

The second case was a bridge, in which the doctor demonstrated the shape, construction and adaptation of a saddle, illustrating his method for securing accurate embedding of the saddle to a uniform depth in the tissues.

DR. O. A. CHAPPELL, ELGIN, ILL.

Patient, L. E. Alkire. Operative clinic. Preparation and manipulation of noncohesive gold. An occlusal cavity in the upper first molar was prepared and filled with Abbey's soft foil, rolled tightly by a special method and cut into cylinders a little longer than the depth of the cavity. Condensation was perfect, the completed filling having a dense, hard surface.

DR. F. H. ROBINSON, AURORA, ILL.

A method of taking upper impressions. First take an impression with soft wax, and after removing cut off the wax just back of the hard palate. Now remove a layer of wax a quarter of an inch deep to within an eighth of an inch of the posterior edge of the impression and two-thirds of the way up the sides so that the wax will bind around the alveolus and across the hard palate.

Now fill up with quite thick plaster, using just enough to replace the wax. Then carry on your index finger to the roof of the mouth enough plaster for excess. This will give a perfect impression.

DR. GRAFTON MUNROE, SPRINGFIELD, ILL.

Some uses of hydronaphthol. *Special care* directed to securing hydronaphthol and not the compound known as betanaphthol. The best make is that of Seabury & Johnson.

Attention directed to ready solubility of hydronaphthol in water (hot and cold), chloroform, ether and alcohol.

Alcoholic solution. Seven grains to one ounce of alcohol is very useful in cleansing cavity prior to insertion of filling—especially in posterior teeth.

Chloro-percha solution with hydronaphthol forms desirable root filling.

Oxychloride with hydronaphthol is also fine for root filling.

Oversensitive pulp, not exposed. A paste of hydronaphthol with oxide powder and a couple of drops of oil of cloves and creosote is excellent practice to prevent consequent irritation that might otherwise follow the insertion of a filling. Hydronaphthol in proportion of one-fourth bulk with oxyphosphate filling makes a fine nonirritating cement for a tooth previously sore from leaky filling. Finally hydronaphthol in its use as a wash in pyorrhea alveolaris:

℞ Hydronaphthol.................................fʒij
Tinct. calendula...............................fʒiv
Ad. aq. dest., q. s........ ....f℥viij

DR. W. H. G. LOGAN, CHICAGO. SURGICAL CLINIC.

Patient, Mrs. Chapman, 113 Desplaines St., City. Thirty-six years of age; suffering from extensive necrosis from (anterior) cuspid to cuspid; right central and laterals missing. This diseased condition, we learn, is from sheer dental neglect.

Operation. Patient etherized. Gum tissue, dissected back; large mass of diseased bone removed, found to involve floor of antrum. Cavity curetted.

Treatment. Pack with iodoform gauze, etc.

Patient, Joe Phillips, 105 Halsted St. Deep depression on left side of face, adhesion to jawbone. The result of abscessed inferior left first molar with fistula opening on side of face.

Operation. Patient anesthetized. Incision made in side of mouth, dissecting tissue from the jawbone allowing cheek to resume normal appearance, completely obliterating depression.

Treatment. Pack with iodoform gauze, hold parts in position until granulation begins.

DR. J. P. CARMICHAEL, MILWAUKEE.

Attachments for bridge inlays and restoring badly worn or broken off teeth without the display of gold or other metal.

In cases of bridge work the method consists in attaching a fastener to the lingual surfaces of the abutments to which is soldered the bridge teeth. The doctor claims for his method durability, strength, cleanliness and artistic appearance, obviating as it does the cutting of the proximal surfaces of the teeth and avoiding the use of gold bands and crowns.

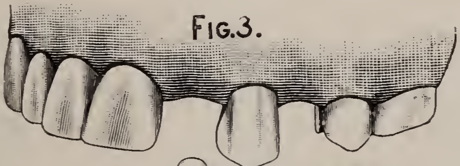


FIG. 3.

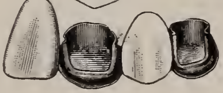


FIG. 4.

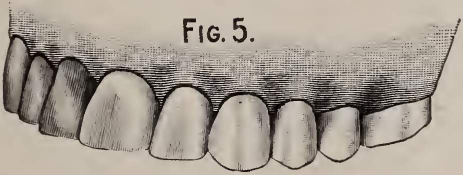


FIG. 5.

Dr. Carmichael says : I desire to call your attention to my new attachment for bridge teeth which does away entirely with the display of gold in the mouth. The accompanying illustrations will make it plain how the method is to be used.

Fig. 3 represents a case where two teeth have been extracted, and Fig. 4 represents two of my fasteners connected with two porcelain teeth ready to be cemented into place upon the inner side of the natural teeth and shown completed at Fig. 5.

For the building up of a badly decayed or broken tooth as shown at Fig. 7, the tooth is prepared without drilling into the sensitive part, ready for the fastener, as shown at Fig. 8, and when completed is cemented into place as at Fig. 9, with a porcelain inlay at K. By this method the tooth is restored to its original contour, the backing serving as a matrix for the inlay, and a metal staple fitted to the grooves will stiffen the metal back and can also be made to serve as a retainer for the porcelain.

As an attachment in bridge work I have perfected it so that any one having a knowledge of dentistry can readily see its advantages. My claims for the superiority of this method are : It is more durable, it is stronger, more natural looking and certainly far more cleanly and healthy than the present methods. This method does away entirely with the necessity of cutting spaces between the teeth, and also the unsightly appearance of gold bands and coverings upon the teeth which is so objectionable to persons of refinement.

FIG.7.

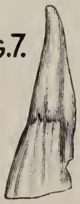


FIG 8.

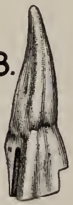
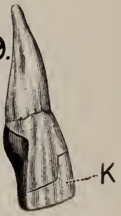


FIG.9.



DR. DON M. GALLIE, CHICAGO.

Filling of mesio-occlusal cavity in upper first molar. This was a faultless operation in every respect. Having prepared the cavity in such a manner as to insure cleanliness of all margins and secure anchorage, the filling was begun with gold pellets. Toward the completion of the operation heavy foil was used, resulting in a filling which took a beautiful finish and presented an exceedingly hard masticating surface.

DR. W. H. FOX, CHICAGO.

Aluminum and rubber plate. The plate is of plain rubber, to which is added an aluminum lining.

The doctor makes his own aluminum mixture as follows : Dissolve unvulcanized rubber in chloroform to a fluid consistency and add aluminum powder until the original rubber color is lost and the bright metallic color of aluminum prevails. After opening the flask paint the model with the aluminum mixture and then pack the case in the ordinary way. The general effect of the finished plate is one of good appearance, is more easily kept clean, and avoids the so-called rubber sore mouth.

DR. GEO. B. PERRY, CHICAGO.

Patient, J. P. Crome. Filling of right upper first molar mesio-occlusal cavity. Started with Williams assorted pellets style A, and finished with Williams gold and platinum folds. Thickness 30, shade 1. The doctor demonstrated the degree of heat necessary for proper cohesion to make a compact homogenous filling.

The beautiful finish, dense, hard surface and shading of the completed filling testified anew to the usefulness and artistic possibilities of this material.

DR. A. F. JAMES, OAK PARK, ILL.

Exhibited a case in which he had previously operated for immediate regulation. The patient was a boy about ten years of age whose left upper central incisor at the time of operation was considerably outside the arch. After cutting the process on either side the tooth was immediately moved to place. The operation was a complete success, the tooth now being in perfect alignment.

DR. L. P. CARDWELL, CHICAGO.

Extracting under nitrous oxide. A large number of difficult cases were handled with perfect success.

DR. R. B. TULLER, CHICAGO.

Patient, Mr. Fisk. Filled and contoured a disto-occlusal cavity in right upper central incisor (C. N. Johnson method of anchorage), using moss fiber gold throughout, the filling taking a beautiful finish, and showing under magnifier perfect adaptation to margins. The operation was to show what could be done with that form of crystal gold. Time saving with such contour work is not in proportion to what may be done in bicuspid and molar cavities with such gold.

DR. G. W. COOK, CHICAGO.

1st. The exhibition of the results of three treatments of the six anterior teeth in the lower jaw, which had undergone loosening through the effects of pyorrhea alveolaris. The deposits were removed from the pockets and a saturated solution of the acetate of copper applied. The treatments were applied once a week for three weeks.

2d. Extraction of first upper bicuspids on the left side, removal of deposits from the root and treatment (1st) with acetate of copper, followed by a normal salt solution, and then replanting the tooth in its original position, holding it in position by means of silk ligatures.

DR. L. C. BORLAND, CHICAGO.

An exhibit of dissections made by the class of 1901.

This was a little out of the ordinary for a dental clinic, and was one of the most interesting features of the day. A number of magnificent dissections were mounted showing points of special interest to dentists.

DR. G. W. JOHNSON, CHICAGO.

Prosthetic technic exhibit. An exhibit of work done by the freshman class in this department. The exhibit was of special interest to those engaged in teaching, showing as it did the great progress that has been made along this line during recent years.

DR. C. F. BRYANT, CHICAGO.

Construction of dies and counterdies. A great many valuable ideas were brought out in the making of molds, fusing and pouring of metals, etc.

DR. J. R. WATT, CHICAGO.

Exhibit of crown and bridge work required of the junior class in prosthetic technics. A great many expressed their surprise at the proficiency attained by the students in this department.

DR. F. W. STEPHAN, CHICAGO.

Patient, L. G. Olmsted. Use of the matrix in filling. The new feature consists in carrying a mat of tin and gold or gold between the matrix and the tooth, and then wedging firmly to place. The portion of this mat of tin and gold or gold which extends into the cavity is then laid against the cervical wall and forms the first layer of the filling.

The main advantages of the method are the ease and certainty of covering the cervical margin, and the overcoming of any danger of checking the margins in applying the matrix.

The cavity filled was a disto-occlusal in an upper right second bicuspid. Tin and gold was used to cover the cervical margin and one-third of cavity, and filling completed with cohesive gold.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

THE DENTAL CONGRESS.

Some inevitable delays always occur in all large undertakings, and this is true of the congress. The United States committee met October 14 in Chicago and nominated essayists and clinicians and honorary officers for the United States. These were sent on to Paris about November 1. The different sections were not at that time permanently organized so that a delay has occurred in sending out the invitations to the gentlemen selected. Very soon this will be done if it has not already been done before this reaches the eye of the reader. The congress is an assured success already, and we trust many will go from the United States.

THE NATIONAL DENTAL ASSOCIATION.

Has anything been done about asking the officers to change the date of the meeting to two weeks later? We fear if this is not done there will be a slim attendance. Dr. B. Holly Smith, the president, we believe is in favor of the change and others we saw in Washington and New York on a recent visit to the East. Will the executive committee take it upon themselves to make the change and if need be also the place—say Richmond, Washington or Baltimore?

TO GO TO PARIS.

We publish in this issue several specimen tours arranged for dentists and their families in connection with the forthcoming dental congress. It will be noted that no arrangements have been made for landing in England or Ireland; this is on account of the possibility of our not being able to get the requisite accommodations in July. If you are going to Paris write at once and secure an option on a room or berth, whichever you are in need of. We will publish in May and June a list of boarding houses (*pensions*) and a few hotels so that a stranger can be directed to them without loss of time.

ILLINOIS STATE DENTAL SOCIETY.

The above society will meet in Springfield the second Tuesday in May, 1900. As this is an off year we expect a good program and an excellent meeting. Last year the society met in Chicago (and you know what that means), and the meeting was largely attended, but the boys from the city were busy showing the theaters and other sights to the boys from the country, and the result was that there were only two or three papers and not much of them could be carried around in your hats. The program committee is hard at work and we expect a large attendance from other States.

TO DEALERS AND MANUFACTURERS OF DENTAL SUPPLIES. EXHIBIT IN PARIS. [TRANSLATION.]

The organization committee of the eleventh section of the International Dental Congress, has decided to establish during the congress (August 8 to 14, 1900), an exhibit with facilities for practical demonstrations of the most recent products and instruments, introduced since 1889, which concern dental art.

We must ask you to note that this exhibit will not be in any sense, a duplicate of that in the exposition itself, at which you will no doubt be represented. In the exposition the articles exhibited will be scattered among the different governments represented, as well as in the different places allotted, and thus lost among other exhibits having no interest for dental art. As intended by this section, the exhibit will have the great advantage of bringing together in one place, all instruments and products, essentially recent, relating to our profession and which you will judge worthy of being brought to notice. While each will have a distinct exhibit, the arrangement will permit of a perfect idea being formed in one visit of the progress in this branch over the entire world.

The utility, and especially the advantages of our special exhibit, will be especially apparent to you if you will consider that it will draw the attention of over a thousand dentists from all parts of the world. In fact, we can at present rely upon the presence of 500 Fench dentists, 200 American, 100 English, 100 German, 50 Swiss and 50 of other nationalities.

Besides the exhibit, this section intends to establish also: 1. A model operating room (cabinet), including the most perfect instruments which can be most easily sterilized, various motive powers, electricity by direct current, transformers for alternating currents, accumulators, compressed air furnished and produced as needed, hydraulic power, small gas motors and vapor motors, sterilizing apparatus, cataphoric instruments, radiographic instruments, hygienic cuspidors, apparatus for lighting, heating, etc.

2. A collection of all that relates to dental accounts and notes; special registers, slips, charts, etc.

3. A complete prosthetic laboratory with tools, dies, electric ovens, etc.

We are certain that the above program will interest you and that you will forward your acceptance as soon as possible stating the space as well as power, electric or otherwise, that you will need, in order that we may allot a suitable location.

Please accept, dear sir, the assurance of our distinguished sentiments.

ED. PAPOT.
The President of the 11th Section.

NOTE.—Send all correspondence to the secretary general, Dr. Sauvez, 17 Rue St. Petersbourg, Paris. For verbal information call Friday mornings on Messrs. Papot and Paulme at the Dental School of Paris, 45 Rue de la Tour d' Auvergne.

INTERNATIONAL DENTAL CONGRESS, PARIS. REPORT OF TRANSPORTATION COMMITTEE.

The subcommittee on transportation has completed arrangements with the well-known tourist firm of Thomas Cook & Sons, 251 Broadway, New York, so that dentists who expeet to attend the congress to be held in Paris, commencing August 8, 1900, may secure for themselves and families steamship and railroad tickets and hotel accommodations at the minimum of expense and trouble.

In making these arrangements the committee has taken into consideration that while some of the delegates may wish to secure only transportation from New York to Paris and back to New York, many delegates will wish to visit other parts of Europe during the summer, and they have planned the following tours to assist such in the selection of a trip that the time at their disposal and their means will suggest.

TOUR I.

a. From New York by Red Star Line steamer "Friesland," on July 18, for Antwerp, thence rail via Brussels to Paris, returning same way to New York. First-class passage, providing berth at minimum rate for two-berthed room, $157.85.

If traveling second-class from Antwerp to Paris and return, fare will be $4.65 less.

By traveling on steamers "Kensington" or "Southwark," of the same line, the fare would be reduced.

b. Via Cherbourg (North German Lloyd service).

From New York by North German Lloyd steamers "Barbarosa" and "Friederich der Grosse," sailing July12 and 19 respectively, for Cherbourg, thence rail to Paris and return same way (twin screw service only). First-class passage, providing berth in room for two persons (minimum rate), $177.

c. Via Cherbourg (Hamburg-American line service).

From New York by Hamburg American line steamers 'Pennsylvania" and "Pretoria," sailing July 14 and 21 respectively to Cherbourg, rail to Paris and return via Boulogne-sur-mer and Hamburg American steamer (twin screw service) to New York. First-class passage providing minimum fare for berth in room for two persons only, $184.25.

Lower fares can be obtained if occupying berth in room with two or three other occupants.

d. Via Boulogne-sur-mer (Holland-American line.)

From New York by twin screw steamers "Potsdam," "Statendam" and "Rotterdam," sailing July 7, 14 and 28 respectively to Boulogne-sur-mer, thence rail to Paris and return same way to New York. First-class passage providing minimum fare for berth in room for two passengers, $163.

If traveling second class from Boulogne to Paris and return, fare would be $3.80 less.

Lower fares can be made by leaving on steamer "Sparndam" July 19.

Tickets can also be arranged via Southampton or Liverpool at proportionate fares.

TOUR 2.

To provide hotel accommodation in Paris for two weeks (fourteen days and thirteen nights), at Grand Hotel du Trocadero, carriage drives for three days, including excursion to St. Cloud and Versailles, twenty tickets of admission to exposition and transfers to and from railway station to hotel, $65.

TOUR 3.

One week's tour to Switzerland from Paris, visiting Lucerne, Interlaken, Thun, Berne, Lausanne, Lake Leman, Geneva, including hotel accommodation, sight-seeing, etc., second-class railroad, $50.

TOUR 4.

One week's tour from Paris to Mayence, thence steamer on Rhine to Cologne, rail to Amsterdam, The Hague, Rotterdam, Antwerp, Brussells, Antwerp, Harwich, London, including second-class railway travel, first-class on steamers, hotel coupons (three meals per day, with lodging), $42.50.

Those traveling via Cherbourg can return by steamers of same line from Southampton, and so make short tour from Continent through England in connection.

There is a United States revenue tax of $5 upon each ticket, regardless of the number of passengers in whose name it may be made out.

Should any one wish to make a longer tour than any of the foregoing, or one with a different route, Messrs. Cook & Sons have such a large variety of tours already planned that there need be no difficulty in making a selection to suit the taste, means or the time at the disposal of any one.

The war in South Africa has caused the withdrawal of many of the English steamships. Passenger accommodations across the Atlantic will be less than usual this summer, while the Paris exposition is attracting great numbers, so that the committee wish to impress upon delegates the great importance of securing their steamship accommodations at once.

Address all communications regarding steamships, railroads, hotels, etc., to Messrs. Thomas Cook & Sons, 251 Broadway, New York.

A. W. Harlan,
W. E. Griswold,
W. W. Walker,
William Jarvie, *Chairman.* } *Transportation Committee.*

January 26, 1900.

DOMESTIC CORRESPONDENCE.

Letter from New York.

New York, February 8, 1900.

To the Editor of The Dental Review.

Dear Sir:—There seems to be more general interest in dental society meetings this year than heretofore as shown by the attendance on meeting nights. Quite a number of new faces are seen, mostly of the younger men who are apparently learning that these society gatherings are veritable schools—treasure houses. And what a pleasure it is to us older people to welcome them and invite them to take part in the proceedings, discussions and the government of the organizations.

The Second District Society of New York State had quite a representative gathering at its regular meeting in Borough of Brooklyn on January 8 last. Once a year the First District Society and the Central Dental Association of northern New Jersey arrange to meet with the Second District Society, and so they did this year.

Dr. I. Norman Broomell was the essayist of the evening. He read a splendid scientific paper on "The Soft Tissues About the Teeth, their Morphology and Pathology," which was followed by a series of lantern slides pertaining to the subject, some of which showed the independent relation of tooth follicle to bony structure of jaws. These were magnificent. The tooth follicle and bony structure had been pulled apart (separated), and seemed to show quite positively that the teeth receive all nourishment from the time of their earliest formation entirely through the anastomosed follicles and that the maxillary bones simply act as a matrix for the tooth germs.

Several of those present discussed the subject, each one expressing the regret that he was not an histologist. Dr. Heitzman's name was used by a few, recalling that gentleman's services to the profession and deploring his death as premature and depriving the profession of the only (dental) histologist available hereabouts.

The discussion (?) of Dr. Broomell's paper resolved itself into commendations entirely.

The only one who essayed to talk to the subject was Dr. John I. Hart, who said the doctor was probably right but that he was not convinced, because of an apparent flaw in the paper as also not proven by the photographic slides.

Dr. Rhein commended Dr. Bromell in a very pleasant way and also said that such work taught considerable, and that the coming student will be better fitted to cope with the loose tooth problem and tell patients honestly whether a tooth can or cannot be saved.

Drs. W. W. Walker, B. C. Nash, Wm. Jarvie, Sanger, Meeker and Chandler (?) of Philadelphia, commended the paper.

Dr. Broomell deserved it all, for the paper and particularly his description of slides, was clear and succinct.

Later in the evening Dr. Crouse, from Chicago, spoke about the Dental Protective Association in the usual way, admonishing the members to remain loyal to the cause and not show the white feather, as a few of our Jersey friends did by paying a small fee to the International Crown Co. as a "quitclaim."

The doctor made one remark that appealed to me forcibly. He said that it took ten years to get a few thousand membership into the association. When the warning came about closing the doors it took about sixty days to double that membership.

The Second District Society and its guests finally adjourned to the large hall in the meeting house building, where a lunch was served.

The New York Odontological Society held its thirty-third anniversary at the Academy of Medicine, Tuesday, January 16. As you well know, these anniversaries have grown to be "the thing" at this time of year, and the Odontological Society always brings together those who are leaders and who are congenial, as a rule. This meeting was no exception. It was not as large in numbers as the anniversary of a year ago, but on that occasion there was offered, you will remember, the occasion of a lifetime, to many, in seeing the work done by, and listening to the paper of Dr. J. Leon Williams, of London, Eng.

The afternoon session began at 2 o'clock with a clinic by Dr. Joseph Head, of Philadelphia. He inserted a porcelain inlay, using an entirely new cement. After the clinic he read a paper entitled "Shadow Problems as Presented by Porcelain Inlays."

This consisted of a description of why inlays appear of different color by different light and when observed at different angles, and that the peculiar reflective property of the present (opaque) cements had much to do with the problem.

Not much dispute arose over Dr. Head's claims. Many appeared to think as Dr. S. G. Perry expressed himself, that the doctor was a-Head of us all on the subject.

One little practical point in connection with the making of inlays was made note of. Dr. Head remarked that he uses a pad of muslin to absorb the excess of moisture from the mix after it is placed in the platina matrix by inverting it on same. This material does not seem to absorb too much of the fluid.

A creamy, slow setting, hydraulic cement is the most desirable for setting inlays. The Harvard cement fulfills this best of all cement on the market at the present time.

Dr. Head said in answer to a question put by Dr. Meeker as to "how to remove inlays from the matrix?" that they should always pull platina from the edge of porcelain; care must be taken in forming matrix not to cut through platinum, not to cut through at the edges otherwise the edges will fracture. Dr. Head uses platinum one one-thousandth inch, but it can be gotten from the manufacturers one five-thousandth inch if desired.

Dr. Hofheinz said—and quite properly, too—that there are a great many shadows not spoken of by Dr. Head. Dr. Head immediately asked, 'What particular shadow do you mean?" Dr. Hofheinz said, "The particular shadow against the indiscriminate use of porcelain," etc. To which Dr. Head said, "Oh!"

Dr. Shepard, of Boston, was present at this meeting. The gist of his remarks on Dr. Head's paper was, "to fuse slowly, was the secret of dense porcelain."

Dr. W. W. Walker, the tactful new president of the Odontological Society of New York, occupied the chair and opened the evening meeting by announcing that the Academy of Medicine and County Medical Society were to interest themselves on the evening of February 19, with the subject of "Anesthetics" and extended a cordial invitation to all members and friends of the Odontological Society to meet with them that evening.

Dr. A. W. Harlan, of Chicago, was then presented as the essayist of the evening. He needed no introduction and his greeting was hearty. The evening session was devoted to his paper entitled "A Review of Recent Literature on the Loose Tooth or Pyorrhea Problem"—a subject which we are all interested in.

There were many present who are personally much interested in solving this problem, if it can be done, and several took a hand (or voice) in the ensuing discussion, which became finally what might be termed "warm."

Dr. Harlan's paper was a concise and remarkably instructive résumé of the writings of six prominent specialists in regard to this subject, giving in brief the very essence of their writings—apparently no one knows "where we are at"—for when all was said and done and the meeting adjourned there had been no real light thrown on the matter, but with a knowledge of the differences of opinion, and the success attained (or want of it as the case may be) as brought out by the essayist, we were encouraged to toil on hoping for "more light;" especially in view of Dr. Nash's statement that we would all know all about it when we should get the second volume of his work on this subject which will soon appear and in which Dr. Nash promises to tell us just what to do so that we can cure all cases—or almost all. Some one remarked "Dr. Nash ought to have published the second volume, first!"

The six writers whose works were reviewed were Drs. Nash, Eames, Barrett, Talbot, Bodecker and Rhein. Three of these gentlemen—Drs. Nash, Eames and Rhein—were present and participated in the discussion.

The essayist condemned Dr. Nash's book (the first volume) because there was no reference to treatment. Said, also, that he had coined new words, and called attention to the fact that there was no agreement between these writers.

Dr. Eames, of Boston, spoke of the subject as a condition, not a disease; claimed that the cause is remote, elsewhere in the system.

Dr. Shepard, of Boston, spoke from the standpoint of a clinician, and not a theorist, and claimed that what was needed was thorough sanitation. He considered the matter as a "filth disease." Spoke of Dr. Riggs' first work in this direction, *thirty-four* years ago, in Massachusetts. Dr. Shepard claims to have absolutely no cases of pyorrhea in the mouths of those who have been his patients from infancy—in about the same manner that the late Dr. Bonwill used to claim exemption for his patients.

Dr. Nash, of New York, refuted Dr. Harlan in regard to the coinage of new words. Referred to some Italian writer for authority for these alleged new words, and very gently, almost pathetically, said, "You ought not to have done it, Dr. Harlan." He declared that all kinds of pyorrhea are curable, with one exception. Referred to his having taken up the study of this subject at the request of the late Dr. Frank H. Hamilton, and having become so much interested that he had gone into it extensively.

Dr. B. Holly Smith, of Baltimore, in his own inimitable manner, praised the essayist for his work of the evening, and lamented the fact that thus far no one had given a satisfactory method of treatment, pointing his remarks with this story: A young graduate in pharmacy, coming home to his father's drug store in the old country town, was much annoyed at the crude Latin used by the old country doctor. Complaining of it one day to his father, he was met with this reply: "Never mind, my son. Damn the Latin, but fill the prescription!" So Dr. Smith says, "Never mind the nomenclature, but give us a remedy."

Dr. Nash, of New York, on his feet for the second time, said that he *knew* that all kinds were curable save one, which he denominated "Idio-pathic."

"Read my second volume and you will know all about it. I will not tell you now—you can learn from the book!"

Dr. Geo. Alden Mills, of New York, rose to the situation with reference to Atkinson, Riggs and his own work; congratulated everybody on the results of the evening's work.

Dr. Joseph Head, of Philadelphia, in his genial, clear, convincing manner, described some of his own work on this subject—gave a brief approximation of his work in tabulating, in certain hospitals in Philadelphia, among large numbers of sufferers from rheumatism, the proportion suffering from pyorrhea, also the proportion among a large number who had Bright's disease, and among a large number suffering from locomotor ataxia. He had been led to believe by what he had read and heard that among the latter class pyorrhea was extremely common. To his surprise he found so little that he did not know but what it might be a good thing to inoculate with the germs of locomotor ataxia in order to prevent the spread of pyorrhoea!

He suggested that those interested in the study of this subject in New York, Boston and Chicago should do as he had done —tabulate the results of such investigations among large classes of sufferers. Then a comparison of such tabulations would certainly be instructive. He referred to Dr. Bonwill's claims of immunity for his patients; hoped Bonwill's shade would not rise to confront him while he described the case of one of Dr. Bonwill's patients who had recently come to him (Dr. Head) and in whose mouth he found loose molars, after having been a patient of Bonwill's for thirty-eight years! He said it was real pyorrhoea alveolaris, despite Dr. Bonwill's statements.

Dr. Hofheinz, of Rochester, N. Y., described the case of a young girl who was in good hands for dental attention, when she was at school, and in his (Dr. Hofheinz) hands occasionally. The first bicuspid on one side, upper, loosened; no other teeth affected; excellent care *always*; very good health. He had finally to extract the tooth, a photograph of which was exhibited and passed around. The question he raised was why this one tooth and no other? He also described a case in his own mouth. Sanitation always thorough. The left inferior first molar has a persistent pocket on the anterior root. Nothing helps it but the ozone which enters his system when on vacation. He has no other teeth affected.

Dr. Safford G. Perry, of New York, spoke of his belief that it was all due to "bugs," otherwise microbes. Referred to the beautiful pictures shown by Dr. Williams a year ago, and of the representations of most beautiful and extensive flora on the teeth; claimed that in this bacterial growth microbes do flourish and thought it very likely that much of the trouble originated there.

Dr. Wm. Jarvie, of Brooklyn, said that he was much perplexed at the confusing statements; while he had enjoyed all that the evening had afforded, he wished there had been more light thrown on the subject.

Dr. Meyer L. Rhein, of New York, was next to speak and soon got into hot water and made things rather warm. He believes it time nomenclature of subject was dropped. In his manner of referring to Dr. Nash's work, he unintentionally gave offense to Dr. Nash, who protested vehemently. Dr. Rhein being cautioned by the president apologized to Dr. Nash, but somehow could not seem to be able to drop the "hot end of the poker" and in a few moments had Dr. Nash again on his feet. It was extremely unfortunate for it resulted in Dr. Rhein's becoming extremely "rattled" and instead of giving us some valuable suggestions as the result of his extensive investigations on this line, he only succeeded in narrating how he left his operating room and indulged in what the ladies would call "a good cry" because he saw the rapidly approaching end of a gentleman whom he was much attached to, foreshadowed by the pyorrhoeal condition in the mouth. Could he have gone into detail concerning this, we might have learned something, but he was too much upset. It was really unfortunate.

Dr. Harlan in closing, said that he felt especially gratified that the discussion was confined to the paper and had not been broadened to take in different methods of treatment, which was not referred to in the paper.

In connection with this subject, the work recently done by Prof. Broomell, of Philadelphia, which was shown at the last meeting of the Second District Dental Society in Brooklyn (see New York letter in last issue of REVIEW) is important showing as the slides clearly do the relations existing between tooth and process and gum tissue both in health and in disease.

There is much food for thought when we realize what the few are doing along these lines. How few constituted our societies and how the many reap the benefit.

New York is justly proud of her dental societies and of the work they have done in compelling, among other things, recognition among all liberal professions.

When the meeting adjourned it was to the banquet room, where a substantial collation awaited attention. The social side was much in evidence, as said before.

William Wallace Walker is the president this year—the only Walker. Nuf sed?

By the way, at the next meeting of the Odontological that old war horse of the dental profession, Dr. N. W. Kingsley, is to be the essayist. One can see the "fine work" of Dr. Walker in that.

We note that recently at one of the leading art galleries of our city there was an exhibition of Dr. Kingsley's reproduction of Rembrandt portraits. Dr. Kingsley has a reputation as an artist as well as a dentist.

The New York Institute of Stomatology last winter held several "extra" meetings of a strictly informal nature. But one has been held this winter. It was at Dr. Davenport's, 51 West Forty-seventh St., at 5 P. M. The subject for discussion was, "The Application of Gold Tips to Worn and Eroded Teeth." Drs. Dwight Smith, J. Bond Littig and F. Milton Smith described their several methods. There was no difference in principle, but some in detail. Both Drs. Smith use pure gold first. Dr. Littig prefers platina. The end of the tooth being smoothed and prepared to suit the operator, two or even three holes are drilled into the tooth as far from the pulp as consistent with strength of tooth structure These holes are not very deep, but rather shallow. Platinum or platino-iridium pins are used. Pure gold is gently but firmly adapted (not burnished) to the surface of the tooth and the pins passed through the gold into the holes, waxed in position, invested and soldered, using just barely enough solder to hold, so the piece can readily be readapted later. The pins are purposely left long, extending from the grinding surface, partly to enable the operator to more readily handle the piece and partly as a guide for the proper length. Up to this point the three gentlemen were in accord; some differences now occur.

Dr. Dwight Smith replaces this piece in position and builds the extension by putting thickness after thickness of spring gold (clasp material) on. Marking the places for the pins and punching the holes, he slips on a sufficient number of pieces to give the proper elongation, waxes them together, invests and solders with eighteen carat solder. One important point, each of the gentlemen agreed that the pure gold, the first piece used (or the platina) should *overlap*, so that the solder might not run under, and so there might be sufficient fullness to permit of contouring and proper finishing. Dr. Dwight Smith emphasized the fact that spring gold (clasp material) and eighteen carat solder will retain color and look better than pure gold, and that such caps or tips after ten to twelve years of service show absolutely no wear, which would not be the case in using pure gold.

Dr. F. Milton Smith, to obtain contour, after fitting the pure gold and soldering in the pins, replaces it and then forms a strip of thin, pure gold *around* the tooth, letting it extend as far down as he desires the extension of the tooth to be. Waxing this together he invests, removes the wax, and fills in with scraps and solders. A difference in method only, as final result is much the same.

Dr. J. Bond Littig works in both ways, preferring, however, to use platina instead of pure gold for the first adaptation. When completed the piece is cemented into position. Both Drs. Smith desire to have the pins fit the holes as accurately as possible, and use as little cement as may be consistent.

Dr. Littig did not lay so much stress on the close fit of pins to holes, but each one wanted the adaptation of the pure gold or platinum as close as could be. Emphasis was placed on *rubbing* or *pressing* this first piece and *not* burnishing it.

As it was an informal meeting conversation became general, many questions being asked about little details. One gentleman wished to know how best to carry the cement into the little holes or, in fact, into the root canal when inserting a crown without having it draw away from the sides when instrument should be withdrawn, or without leaving some air at the botton of the hole. Perhaps some of your readers can answer this question.

Dr. McLaren described his method of preventing change in relation of different parts on soldering by reason of contraction. He uses large round nails—or heavy round iron wire—bent to assume somewhat the shape of the piece and in case of crown for instance bending the ends up into the end caps making a sort of compensating balance.

At about 7 o'clock an adjournment was had to the Knickerbocker Athletic Club, where an enjoyable dinner was partaken. These little social events certainly bring us closer together. Since the above afternoon meeting the Institute of Stomatology has had an intermission of eleven days. This bit of information is interposed that you may not think the remarks that are to follow, "a continuous performance."

Tuesday evening, February 6, was the regular meeting night and this time they convened at the office of Dr. E. A. Bogue, 63 W. Forty-eighth Street, who presided at the meeting. The evening program consisted of a description of a new suspension bridge by Dr. Horatio C. Meriam, of Salem, Mass. In brief the doctor's method is to force heavy gauge twenty carat gold rings over the large diameter of teeth in cases for bridge work and to allow same to just lap over the cutting edge of the teeth, but not to interfere with the occlusion of the teeth. Really make an open cuspid crown that shall not extend to the gum margin. Reinforce these with high grade solder and carry between the piers so made a dummy crown. The doctor constructs these of countersunk teeth driven into gold rings then the ring closed at the base, then united to the pier crowns, the whole to be attached to place with gutta-percha. The claim for this method is that the disfigurement of the natural teeth is obviated; also that a readily cleansed case is the result. He also showed models of cases where a single open cusped cap encircled a first bicuspid tooth and suspended from that was a wire bent semilunar about the cuspid tooth and resting on the gum tissue which carried a lateral incisor; in fact the principle has many applications.

Dr. Meriam illustrated his subject by charts, also free hand drawing on the blackboard. Of course a description went with each drawing on the board and those who followed did likewise.

Dr. Meriam's paper and discussion passed, Dr. Fredrick L. Bogue's short, very instructive paper describing a modified wire clasp was read and shaped clasps shown.

Earlier in the evening Dr. St. George Elliott spoke of ethylate of sodium, which is a rich, red, syrupy liquid, exceedingly corrosive, which he uses apparently quite freely in the mouth in cases where hypertrophied gum presents itself between teeth and overlapping edges of a cavity requiring filling.

He applies it with a pellet of cotton. It occasions the destruction of the tissue, melting of it as it were into a gelatinous mass. Commercially it comes in the form of powder which is dissolved in alcohol. Dr. Elliott described a case of a small oral tumor which was about to be operated on but was cured by the applications of ethylate of sodium.

The discussion finally drifted to "Splits," and Dr. Elliott again had the floor.

He described a tactful "application of a screw bolt through a split molar" which penetrated from side to side. The bolt headed on one end and a nut attached to the other. A model was shown where this had been done, and it certainly appeared the most radical and effective repair of such cases. He also described a case of transplanted tooth and the way he swaged a silver cap to fit over the teeth which was slit at the interdental spaces, holes pierced at the upper ends of slits, silk ligatures passed through the holes and about the teeth, the case tied in place after placing the cement for rigid holding.

Quite a general discussion followed with reference to experience with fractured roots which showed the necessity for resourceful means on the part of the dentist in attempting to save such teeth. The writer has had some experience with split roots the summary of which is that they have all been lost; seemingly through inflammation occurring from the rough edges of the fracture irritating through their roughness or pinching the pericementum and the decomposition of the serumnal exudate arising from such inflammation which finds lodgment in the fracture.

Dr. Geo. S. Allan told of a tooth he purchased from some one the physical evidences of which bear out the assertion of the one from whom he bought the tooth, that the same had burst asunder through internal pressure of gases or inflammation while in the mouth.

The meeting adjourned to Dr. Bogue's dining room where lunch and refreshments were served. Yours sincerely,

THE BOROUGHS.

BOOKS RECEIVED.

CHRONIC ALVEOLITIS (Pyorrhea Alveolaris). Volume I. Its Causes, Clinical History and Treatment, with General Directions for the Care of the Teeth. By Dr. HENRY S. NASH. New York: F. Schleuning, Publisher. 1899.

MEMORANDA.

Try paraffine for lubricating disks and strips.

Dr. C. P. Pruyn has gone to California for health and recreation.

The editor has been laid up with the grippe, but is getting around once more.

Dr F. F. Fletcher, of St. Louis, attended the Chicago Alumni Clinic in January.

Dr. J. W. Wassall sailed January 27 for the Mediterranean, to be gone two or three months.

Drs. A. H. Fuller and H. J. McKellops were in Chicago in January while the editor was in New York.

Dr. H. P. Carlton, of San Francisco, Cal., passed through Chicago on his way to the technic meeting in December.

Dr. L. K. Fullerton, formerly of Waterloo, Iowa, has removed to Denver to become associated with Dr. W. E. Griswold.

Dr. H. L. Cruttenden, of Northfield, Minn., secretary of the Minnesota State Dental Association, was in Chicago in January.

We are under renewed obligations to Alfred Burne, D. D. S., of Sydney, N. S. W., for late news of dental matters in that far-off country.

Dr. W. T. Chambers, of Denver, Colo., was a visitor in Chicago during February. Dr. Chambers says quite a number of men will go to Paris this year.

An interesting discussion on quackery took place in parliament in New South Wales recently, which is quite spicy reading for a safe parliamentary debate.

The Hartford Dental Society gave its formal opening of its new quarters, in the Hartford Life Insurance Building, corner of Pearl and Trumbull Streets, Saturday evening, January 27, 1900, from 7 until 10 o'clock.

Dr. Godfrey S. Solomon, for the past eighteen years located in Chicago, has located in New York. Dr. Solomon, in addition to being an expert operator, was a pupil of the late Dr. Marshall H. Webb and a graduate of the University of Pennsylvania, 1882.

NEBRASKA STATE DENTAL SOCIETY. ANNUAL MEETING, OMAHA, MAY 15-18, 1900.

The twenty-fifth annual meeting of the Nebraska State Dental Society will be held in Omaha, May 15-18, 1900.

LEAH MILLS,
Corresponding Secretary.

At the regular monthly meeting of the Odontological Society of Rockford, the essayist, Dr. M. L. Hanaford, read a paper on "Root Canals." He had previously given each member a lower molar with roots imbedded in plaster to make a root filling. The roots were then filled so as to expose the root filling. It proved a very interesting feature. The lesson learned was the great shrinkage of chloro-percha, and the essayist recommended moistening the large canals with eucalyptus or cajuput, and pumping the cone till filled, which gives a more solid filling. In fine canals uses chloro-percha and a fine point or wire. Dr. Cattell's lantern slides on root canals were projected on a screen, which was another rare treat.

No. 900 Spruce St., Philadelphia, Pa.
Thursday, January 25, 1900.

To the Editor: In the second line of the last paragraph of my article, page 55, January Review, the omission of the letter "h" from the fifth word of that line, entirely changes the sense of the sentence, and unfortunately while so doing permits it to read as smoothly as though it was correct. It should read, "That attempt of the then professional leaders, etc." Will you kindly call attention to this in your next issue, and oblige,

Yours respectfully,

William H. Trueman.

KENTUCKY STATE DENTAL ASSOCIATION. CHANGE OF DATE.

I wish to call your attention to the change of date of the meeting of the Kentucky State Dental Association. On account of change of meeting of Confederate Association, and for the purpose of getting railroad rates, we, too, have changed our date to May 29, 30, 31. We have some thirty papers promised for the meeting and nearly as many clinics, and we will still add others to the list. Please be kind enough to announce this change of date and give us as much other notice as you deem wise. We have men on the program from about twelve States. Do not fail to come and meet with us, and we promise you a fine time.

Yours fraternally,

F. I. Gardner, D. D. S.
Secretary.

DENTISTS FOR THE ARMY AND NAVY.

Drs. T. W. Brophy and W. C. Barrett were in attendance upon the meeting of the Technic Association, in Philadelphia, during the holidays. The weather was cold, and they, instead of returning home, set off south in search of a more genial clime. They did not find what they were searching for until they reached Havana, Cuba. There, within the tropics, they employed their time in trying to keep cool and in fighting mosquitoes. They report visiting Morro, Cabanas, and the other points occupied by our soldiers, and talking with them concerning the advisability of appointing dental surgeons for the army. Every man with whom they spoke was enthusiastic over the proposition. Our men suffer greatly from diseases of the mouth and teeth, and this interferes seriously with their effectiveness, to say nothing of their comfort. On their slender pay they say it is utterly impossible for them to employ a local dentist, and so there is nothing for them to do but to get their teeth dug out in the most crude and barbarous way by the regimental surgeon, or more often some amateur butcher, neither of whom has any of the modern conveniences for this operation, and not infrequently a man is laid up in the hospital for a considerable time because of the lack of competent dental services. Every soldier with whom they talked said that the government could take no step that would add so much to the comfort and effectiveness of the men as the appointment of dental surgeons for the army.

EDWARD A. DURBIN.

Many friends will mourn the untimely passing away of Mr. E. A. Durbin, who died yesterday afternoon at his home, 1751 Franklin St., Denver, of pneumonia.

He was born in Wooster, Ohio, May 1, 1863, came to Denver in 1875, was graduated from the Denver high school in 1880. In 1885 he entered actively into the business established by his father, J. Durbin, and at the time of his death was president of that same but much enlarged concern, the J. Durbin Surgical and Dental Supply Company. In 1891 he was married to Miss Hattie L. Fulton, who, with a seven-year old son, survives him. He leaves three brothers—Superintendent C. K. Durbin and Dr. L. T. Durbin, of the Denver Tramway Company, and J. B. Durbin, who was associated with him in business. Mrs. George S. Van Law is the sister.

Mr. Durbin was a prominent Knight Templar and Mason and a member of the Knights Templar Drill Corps. The funeral at Riverside Saturday afternoon will be under the auspices of these bodies.

The services at the home at 1:30 P. M. Saturday will be conducted by Rev. A. B. Hyde, of the Denver University, and Dr. C. M. Cobern, pastor of Trinity M. E. Church.—*Denver Paper.*

DEATH OF DR. ALFRED J. WATTS.

Dr. Alfred Joseph Watts, whose name has become familiar wherever dentistry is practiced, through his invention of "Watts' crystal gold," died suddenly at his home, 1123 Bedford Avenue, Brooklyn, at 4 o'clock this morning.

Dr. Watts was born in Chippemonga, England, in November, 1827, and was educated as a physician. When twenty-three years old he came to this country with his brother and settled in Utica, N. Y., where he practiced medicine for several years. He was interested in all branches of physical science, and published several scientific treatises. In the early '60s he discovered a process for the formation of a soft, pliable gold for the use of dentists. Under a microscope this gold has the appearance of a cluster of gold fern leaves, and for that reason it has often been designated fern leaf gold.

Dr. Watts patented his invention about 1870 and came to Brooklyn for its manufacture. Twenty-five years ago he settled in the house where he died. Through the manufacture of this gold he made a fortune. The process of the manufacture of this gold was a deep secret, and only his son and himself were acquainted with it. His son died four years ago, but the secret has been jealously guarded by his family. There have been many imitations of Watts' crystal gold, but it is said that none have equaled it.—*Chicago Tribune.*

PROSTHETIC CLINICS.

Translation. We have the honor to inform you that our committee of the International Dental Congress has asked the ninth section to organize practical demonstrations in prosthetics, to which purpose we shall devote much space, and wish to make as interesting as possible.

You will easily understand the importance of this new feature in our congress, and, being well aware of your attainments in this branch of dental art, we take pleasure in inviting you to these demonstrations, where science and art will rival one another in the interest of our profession in general.

As our congress is assuming large proportions as a result of the members joining us from all directions, and to avoid the reception of offers perhaps too late for the attention they should receive, we would ask that you advise us in the shortest possible time, if it is your intention to give a few demonstrations at this congress.

It is necessary for us to know in advance the subjects that will be treated, as well for purposes of classification as for provision of necessary material, for which the necessary amount of time must be provided.

Thanking you in anticipation and hoping for your prompt reply, be pleased to accept, honored confrère, the assurance of fraternal sentiments.

International Dental Congress.
F. Jean,
Chairman Ninth Section.

FIRST ANNUAL CLINIC OF THE KANSAS CITY DENTAL COLLEGE.

To be held in the College Building, Tenth and Troost Ave., Kansas City, Mo., February 22 and 23, 1900.

Announcement: Believing the time ripe and the conditions favorable, the management of the Kansas City Dental College takes this means of announcing to those interested in progressive dentistry, that, beginning with this year, the first of the new century, it will annually hold a clinic on the 22d and 23d of February, at which it will endeavor to present, through volunteer clinicians, all of the latest and best methods of the dental profession.

Kansas City is so centrally located, so entirely accessible to all parts of the United States, on account of its unsurpassed system of railroads, that it should, with proper direction, occupy a very prominent position in the list of cities favorable for such purposes.

A good start has been made this year, and a careful perusal of the program will justify the expectation of a successful meeting.

Morning, February 22: A. W. Harlan, Chicago, "Pyorrhea;" L. C. Wasson, Topeka, "Method of Using Matrix in Deep Cervical Cavities;" W. H. Shulze, Atchison, "Regulating Appliances and Casts;" C. E. Esterly, Lawrence, "Porcelain Work;" T. I. Hatfield, Marysville, Kan., "My Method of Crowning Frail Roots;" Frank Slater, "My Method of Taking the Bite;" M. I. Hults, Hutchinson, Kan., "Gold Filling;" R. C. Brophy, Chicago, Ill., "A Dentenax Crown." Afternoon: Chas. H. Darby, St. Joseph, "Jenkin's System of Porcelain Inlays;" J. W. O'Bryon, Lawrence, "Cement Filling;" S. B. Prevost, Kansas City, "Tin and Gold Filling;" James A. Price, Savannah, Mo., "Amalgam Filling;" U. S. Hougland, Wichita, Kan., "Porcelain Crown;" S. S. Millett, Kansas City, "Adjusting Logan Crown." Night: C. L. Hungerford, Kansas City, lecture.

Morning, February 23: W. A. Coston, Fort Scott, "Ground Porcelain Inlays," Rudolph Matthews, Wichita, Kan., "Root Filling;" K. P. Ashley, Kansas City, "Gold Filling Using Power's Mallet;" F. P. Cronkite, St. Joseph, "Porcelain Work;" A. J. McDonald, Kansas City, "The New Century Dental Engine;" S. J. Renz, Leavenworth, "Vulcanite Plate with Gum Sections." Afternoon: R. M. Seibel, Kansas City, "Porcelain Inlays;" J. S. Letord, Kansas City, "Adjusting Logan Crown;" C. B. Hewitt, Kansas City, "Gold Filling, Illustrating the Use of the Mouth Mirror;" E. E. Baumgardner, Lawrence; E. M. Hiner, Kansas City, "Pyorrhea." Night: A. O. Hunt, Chicago, Ill., lecture. Banquet, 10:30, Midland Hotel.

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

METHODS WHICH AVOID THE DISPLAY OF GOLD IN INDIVIDUAL AND ASSEMBLED CROWNS.*

BY B. J. CIGRAND, B. S., M. S., D. D. S., CHICAGO, ILL.

Some time since, the Chicago Dental Society appointed a committee for the specific purpose of suggesting changes in artificial teeth and reporting such matter in prosthetic work as relate to improvements in artificial dentures. Drs. L. P. Haskell, myself, W. H. Taggart and G. W. Schwartz were named as the committee. This paper is intended as a report in part; the other members of the committee reporting on other features relative to the work under consideration.

During the past half century the advancement in the art and science of dentistry has surpassed the progress of any other vocation, and to-day it stands among the learned professions. To this happy era in our calling the American dentist has liberally contributed. The glory of establishing nearly all the potent elements of dental progress is the cherished record of the American practitioner. The mechanical appliances, various labor-saving devices, materials and discoveries chronicled by the Americans are so numerous that mere specification of their contribution would consume hours of time. But there are other elements to which the profession owes its present high standing. These factors are: The introduction of gold for prophylactic purposes, invention of porcelain teeth, organization of dental societies, founding of dental colleges, issuance of professional journals, employment of the microscope, and establishment of dental supply depots.

In my paper I hope to confine myself strictly to porcelain and to its influence on prosthodontia. To porcelain the art of dentistry owes its very existence. Without this important substance the lifelike reproductions of the natural teeth would be an impossibility. No substance has a brighter future than porcelain, for it is a material in which not only the beauty of expression delights the eye and gives evidence of the highest esthetic cultivation, but links to that beauty the additional triattributes of usefulness, durability and hygienism.

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*Read before the Chicago Dental Society.

Dr. C. N. Johnson has aptly said that gold is the poetry of operative dentistry, and he might have added that porcelain is the mother of prosthesis; for without this moldable and modifiable substance our artificial dentures would still be produced from old bones, ivory and other destructible animal tissue. Porcelain or mineral teeth, though of French origin, owe their perfection to the untiring efforts of American ingenuity. A Frenchman, Dubois De Chemant, is commonly credited, in 1788, with the invention of what is known as mineral teeth, but these are not like the modern porcelain teeth in neither composition nor appearance. To A. A. Plantou and Charles W. Peale must be awarded the honor of manufacturing, in 1820, the first porcelain teeth.

The gradual improvements of these artificial teeth into the various shades and innumerable shapes does not enter into this paper. But the evolution of the present adaptable porcelain teeth or crowns requires that the mere mention of the inventor's name and the date of production be given; though it is unnecessary to describe these or present illustrations, since only such crowns as are in accord with the purpose of this paper will receive consideration. These early inventions are: In 1822, C. W. Peale; Dr. Foster, 1849; M. L. Logan, 1869; Dr. Lawrence, 1873; Dr. J. W. Beers, 1874; W. H. Gates, 1880; Dr. C. M. Richmond, 1881; Dr. M. H. Webb, 1882; Dr. W. G. A. Bonwill, 1883; Dr. W. S. How, 1882; Dr. H. K. Leech, 1885.

Before entering into a discussion of the crowns which have come into use since 1885, privilege me to make the following classification of crowns in order that you may more clearly comprehend the object of the paper. The great variety of crowns which are at our command may be divided into three classes: First, those of porcelain; second, those of metal, and third, those of both porcelain and metal. These three grand divisions might be subdivided into three groups, namely, those which band the root (either circum or intradental); next, those which depend on a post, and lastly those which are anchored by both ferule and post.

Of the innumerable methods advanced for crowning or substituting teeth none can be advocated as the universal or best; each has an undisputed territory, all have meritorious features and all share in shortcomings. It, therefore, remains for the operator to decide which of the methods or systems is most preferable. Yet in all this diversity we ought to analyze the merits of these methods so as to arrive at some definite conclusions and institute a classification which may be of service both to the student and the practitioner. In operative dentistry the technic of cavity formation, through the indefatigable efforts of Dr. G. V. Black, has become universally adopted, and his anatomical nomenclature, so perfected that the profession has gladly accepted, with slight alterations, all he has proposed. If a similar status could be attained in prosthodontia incalculable good would result. We are as yet hampered in prosthetic work in that we have not a true medium of mental exchange. When we accept or agree upon a complete terminology we shall have a channel through which we may safely send thoughts on any branch of this department of dentistry without fear of misconception. The National Technic Association has done something in this direction, but nothing of a decisive character, and the effort thus far has been limited entirely to the student technic rather than to practical infirmary work.

The classification which was made of the individual crowns will answer for bridges as well, for a bridge is but assembled crowns. The assembled crown case might be divided for convenience of description into the mesio-pillar and disto-pillar, or anchor, while the suspended artificial teeth might be known as the intermediate substitutes. The location of the case in the mouth with reference to the situation in either the upper or lower jaw, and also the designation of the right or left side, as well the anterior or posterior portion, can be given with accuracy in the following terms:

Case Location.
- Supra-Dextro-Labio-Assemblage
- Supra-Dextro-Bucco- "
- Supra-Sinistra-Labio- "
- Supra-Sinistra-Bucco- "
- Infra-Dextro-Labio- "
- Infra-Dextro-Bucco- "
- Infra-Sinistra-Labio- "
- Infra-Sinistra-Bucco- "

Pillar Position.
- Normal.
- Abnormal.
  - Inclino.
  - Defecto.
  - Externo.
  - Interno.

It was evident that a table of this kind was imperative in order that an intelligent discussion of cases could be conducted, and I trust that in the discussion there will be a rich symposium of deas relating to the several methods here delineated. It is to be hoped that we do not enthusiastically endorse any of the systems, but that a deliberate regard be paid to the principles involved in the general theme.

It is to be regretted that nearly all inventions or discoveries in either arts or sciences suffer much at the hands of the over-zealous and enthusiastic. Notwithstanding that enthusiasm is a necessary attribute in all progressive work it must be curbed by a judgment founded on experience. Too frequently are new appliances over-estimated and too readily accepted. Often have these new departures, so-called fallen to the hands of those unacquainted with the real purpose of the instrument, and through unwarranted enthusiasm ridden the hobby-horse to death, hence bringing the serviceable find into questionable light and eventual disuse. Few new discoveries have run the gauntlet of the profession better than bridge-work, better known as assembled crowns. That this system of restoring lost dental organs has suffered much through too prevalent applications, no one familiar with its history will dispute. Advances in the arts and sciences must be of slow growth. Like government affairs, reform must be of so gradual a process, that unbeknown it steals its way into the hearts of men; for when of too rapid a nature it is both unhealthy and short lived. In our profession, as in all organized society movements, the conservative must be the "pillars of strength."

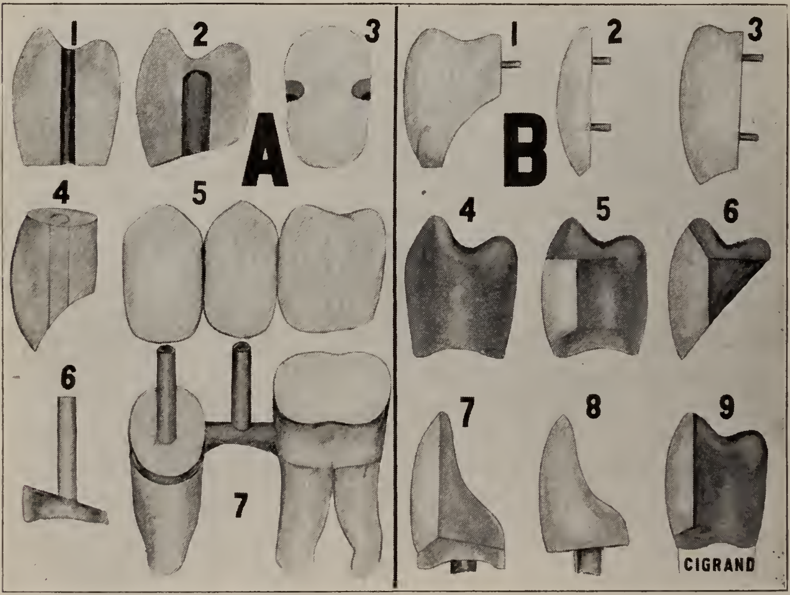
Movements of a more or less reactionary character are a part of all advancement.

This tendency to return to methods once in vogue and long since forgotten is often a vivid criterion of progress. In dentistry this applies in a most emphatic manner, since we find that modes of treatment employed in days gone by, are oft revived with improvements and modifications which stamp them as practically new inventions and discoveries, these movements are not to be proclaimed as retrogressive, but on the contrary are to be welcomed as a certain sign of marked advancement.

Conservative practitioners throughout the broad land have gone back, so to speak, to the small bridge or assembled cases.

The professionals have recognized the error of the enthusiastic bridge builder, who enthusiastically spans between two natural teeth an attachment of five or even eight artificial ones. They have observed that the hastily constructed Richmond crown with ill-constructed ferrule has inaugurated a siege of peridental and alveolar troubles; they have carefully noted that the all-gold-telescope-advocate who so eagerly caps a slightly decayed tooth has outraged his profession, and all this has taught the conservative practitioner that no tooth must be subjected to a process of crowning unless the restoration of the neighboring teeth absolutely indicates such a procedure. Dental elimination and annihilation or aphaeritic operations properly fall to the oral surgeon and have nothing in common with dentistry, which has come to mean dental preservation. Crown work has advanced in theory only when the theory has brought fruit in actual practice. In its twofold evolution it absorbs from every available source, which tends to broaden its art or perfect its science, and in consequence calls to its aid anatomy, chemistry, therapeutics, surgery, physiology, pathology, mechanics and sculpture. The prosthetic has evolved from the mere mechanical to a plane where it is quite in evidence in the dental operatory, while the operative has also become more thoroughly interlaced with the prosthetic, and the necessity of resorting to the laboratory is apparent. And so instead of these two grand divisions of dentistry separating they are coming closer together, and call into effect the same underlying principles of both mechanics and medicine.

So much for the proem of my paper; the remainder of it can be brief, since with the aid of these illustrations I can readily progress. These drawn devices serve as ocular demonstrations of the operation or appliance intended. The paper from this on will be pictorial rather than descriptive, and the diagrams presented are serving as symbols, and this is the true language of this rapid period in which we live. The drawings I executed from specimens furnished by the person suggesting the system, or from individuals who have improved a method. During the past two years my correspondence with dentists interested in this line of work led me to visit the leading dental depots of the east, and through this source gained much information which otherwise would have been difficult to obtain. There have been many devices sent me and upward of fifty different designs of variously constructed crowns were received purposing the avoidance of gold in prosthetic work, but I have here earnestly sought to eliminate such as are not practical or which present features of a duplicatory character, presenting those only which appeal to me as approaching the desirable requisites, and speaking of them according to priority of production.



In diagram A, Fig. 1, we have the first porcelain crown containing platinum. This was invented by Charles W. Peale, who distinguished himself by serving Washington professionally and painting the most authentic likeness of the great American. The porcelain tooth had a platinum tube in the center which allowed the metal bar to be riveted it to the support. Fig. 2 and 3 is the Harrison tooth patented in 1856, and had a groove mesially and distally receiving complemental metal stays. This tooth depended upon being cemented into a metal receptacle.

Figs. 4 and 5 are the English tube teeth, and are virtually the same as the Peale teeth. They are attached to a metal post and cope, as shown in Figs. 6 and 7. The palatal or lingual contour by this method can be fairly well restored, but they are held in position by means of moulten sulphur, and this agency has not yet proven to be without fault. The cusp outlines are far from being anatomical.

Here we have the early cube tooth with the platinum pin so situated as to allow easy attachment to the gold backing. (Fig. 1.) This tooth is not constructed to withstand serious strain, as the masticating force exerted on its external surface would necessarily cause the porcelain to fracture. The cusps are flat and indistinct, and have irregular grooves, supposed to represent the sulci of the tooth. Fig. 2 represents the porcelain veneer, and unless this mere shell is protected by metal its career of usefulness must indeed be brief. Fig. 3, though slightly thicker than the preceding, nevertheless shares in the same criticism. This tooth, known as the "facing," is much used at present by many prosthesists, but the cusp outline, as well as method of attachment, needs improvement.

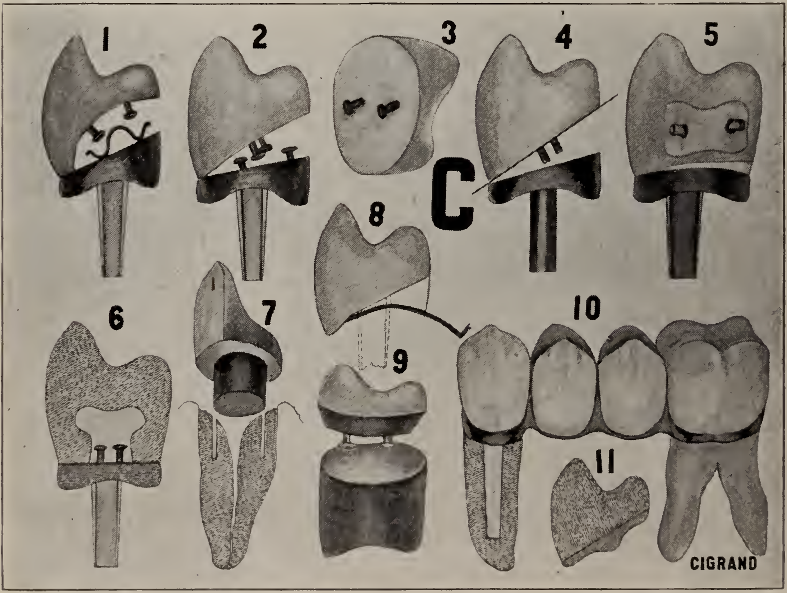
Fig. 4, all gold telescope crown, invented by Dr. Lawrence in 1873; and this crown is quite generally employed to-day in assembled cases. In 1880 Dr. C. M. Richmond improved Fig. 4 by adding a porcelain veneer on its labial surface, as seen in Fig. 5. This latter method was improved by Dr. Rollo Knapp in 1886 so as to display less gold and extending the porcelain to the cutting edge, Fig. 6.

Fig. 7 illustrates the modern Richmond crown with accurately fitted ferrule over a properly shaped root.

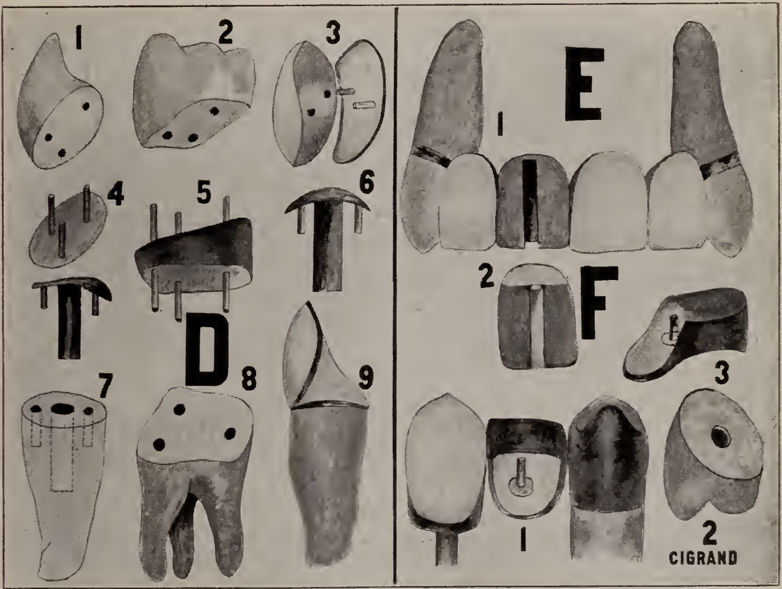
Fig. 8 represents the Logan crown, which approaches nature nearer and gives universal satisfaction in cases where the root is strong and properly fitted, and when attached by means of both gutta-percha and cement is promissory of excellent results. When set on weak roots it will be necessary to add strength to the root by means of either an intradental or circumdental band.

Fig. 9 shows the Richmond as soldered by Dr. A. H. Peck. This crown, though of recent date, having been presented to this society in 1897, is included in the Richmond group. The porcelain veneer is soldered to the gold telescope, and it adds considerably to the appearance of the crown.

This chart relates to my method of effecting natural results in individual and assembled cases. In a college clinic in 1891 I gave Fig. 1 and in 1895 I presented several similar ideas to the Illinois State Society. Fig. 1 shows the old saddle-back tooth mounted on a gold cope having a corrugated ribbon of gold soldered to serve as an anchor for the vulcanite which was the agent of attachment. The crown could also be made by employing solder instead of vulcanite, and it could be made into a full porcelain crown by making the cope of platinum and filling the gap with porcelain. Johnson & Lund have since given me a tooth which is considerably stronger than the saddle-back. This tooth is shown in Figs. 2, 3 and 4. They can be had for either vulcanite attachment or gold attachment, as suggested in Figs. 2 and 4. Fig. 5 demonstrates how I employ the Logan crown in assembled cases. I first drill two holes on the side intended for attachment and place into these holes platinum pins having heads. The pin is placed with the head into the Logan, and then porcelain body is added around the pins, and the Logan placed in the dental furnace. When this is done I fit a heavy piece of gold to the lateral side of the Logan, as represented in Fig. 5, and to this patch of metal I solder the intended intermediate crown. Fig. 6 indicates how the Howland porcelain crown can be fastened to a gold ferrule, and may be attached as Fig. 1. Fig. 7 illustrates the method I employ in anchoring a Richmond when I hope to use the latter in assembled work. The root as indicated is decayed



below the alveolar process and a circumdental band is contra-indicated; the intradental band in this case becomes a most useful appliance. The band thus made allows extensive surface for cement anchorage; a point in its favor in assembled work, as the strain on the pillar crown is great. Fig. 3 shows how the Logan can be attached to gold bases. Fig. 9 suggests how a porcelain cusp may be set in a gold shell for individual cases. When a case is made as in diagram B, Fig. 5, the patient when smiling immediately shows the brilliant gold cusp; and when laughing shows the porcelain. In Fig. 9, under consideration, the reverse is true, and lends esthetic effect to the crown. Fig. 10 illustrates an assembled case using my suggestion as regards porcelain teeth, the Logan acting as the mesial pillar, the molar as the distal pillar, and the intermediate teeth supplied by joining porcelain as in Fig. 4. A sectional view of the first bicuspid intermediate crown shows the gold thick immediately under the center of the crown, at a point where there is likely to be the greatest strain.

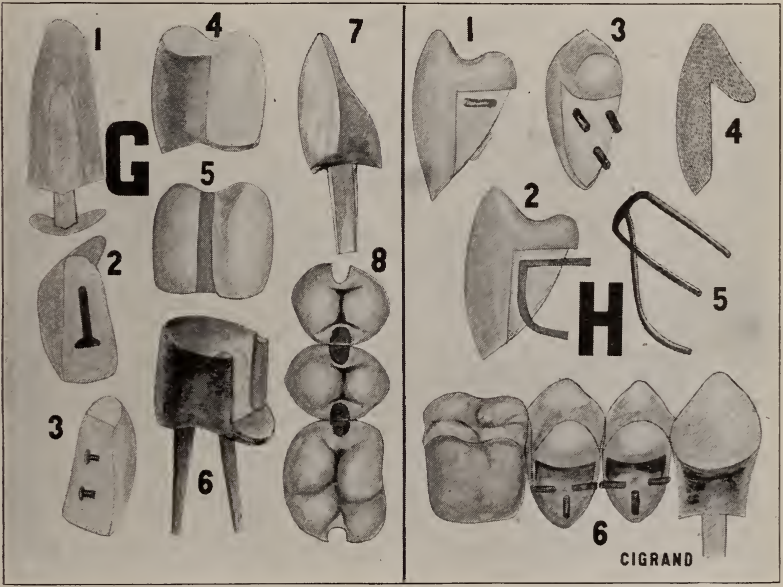


This illustrates Dr. C. L. Alexander's method and it is the first attempt to have the platinum pins in the gold attachment rather than in the porcelain, thus avoiding likelihood of fracture during soldering. The porcelain crowns are cemented into the metal bases and the holes in the crown have complemental metal pins on the attachment, as Figs. 1, 2 and 3 show. The metal bases are constructed and positioned as shown in Figs. 4, 5 and 6, while the root ends are shaped to receive anchor posts or pins as illustrated in Figs. 7, 8 and 9. This method, though in a far less complete manner, was given to the Southern Dental Society in 1896. I had the pleasure of seeing Dr. Alexander give a very interesting demonstration of this system at the Triunion Dental meeting at Baltimore in 1898. The method seems intricate, but in his hands it proves to be a success, and the cubic form of the porcelain gives evidence of little gold display. The objection which I would make is that he resorts to cement for attaching the porcelain to the metal base, and this certainly cannot give hygienic results, nor can the crown withstand the ravaging influences of the buccal acid or the oral secretions.

In 1896 Dr. Walter C. Mason exhibited his detachable porcelains for individual and assembled cases at the First District Society of New York. The porcelains have a flat back with a three sided platinum bar baked into the tooth so as to fit a similar shaped groove in the metal backing of the case. This system has been advocated as the nearest perfect for reproducing crowns, as it made repair work easy and certain. In the event of a broken veneer a substitute could be fitted as seen in Figs. 1 and 2. The veneers are cemented into position and the bicuspid and molar crowns are porcelain-faced in the same manner. I have given this method a fair trial during the past three years and had hoped the results would be as foreshadowed in the excellent demonstration of its inventor, but I regret to say that the system has not been as complete a success as I desired. These teeth do not fulfill my dream of easy repair work. This method has its great strength in its purpose of making resettings possible without complete destruction of the remainder of the case. The cement attachment is in my estimation but a temporary agent of anchorage. I believe that if the teeth might be made thicker and then fastened to the gold with chloro-rubber the work would be more permanent.

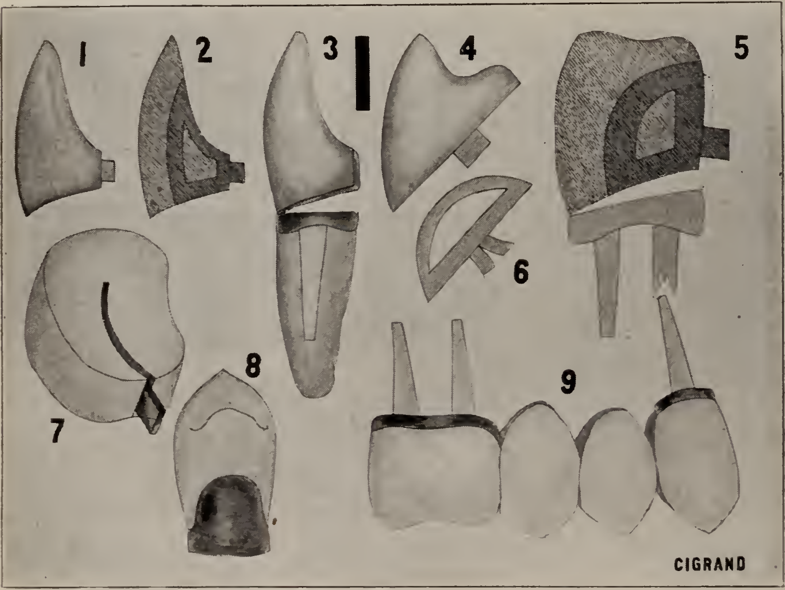
This represents the Davis-Townsend method. This method contemplates setting porcelain crowns in gold cups and cementing them into position. This system is intended for buccal cases and answers fairly well even in individual crown work. In assembled work the gold cups are made sufficiently strong to protect the porcelain. The criticisms made of diagram E will in a large measure hold true in this system. The main calculation in this method is ready repair work and incidentally the restoration of the lingual contour, as shown in Figs. 1 and 2. Simplicity of construction is its strong feature.

In 1897 Dr. F. Ewing Roach presented a system to this society which he claimed was productive of natural appearance and resulting in lingual contour. He also stated that by his method the artificial substitute was not a hindrance to the speech but gave the tongue a normal territory, besides the fractured porcelain could be readily replaced. The centrals were so constructed as to accurately fit a dovetailed groove in a gold backing (Figs. 3 and 2), and the crown can be soldered to the post which has attached to it a metal disk covering the trimmed end of the root. (Fig. 1). By this method the porcelain is not subjected to the fire, since the porcelain crown is cemented to the metal backing. The molars are porcelain cubes much after the fashion of Dr. Harrisons' tooth (diagram A, Figs. 2 and 3). The molars certainly



can endure pressure since the porcelain is in a cubic form and we have learned by sad experiences that porcelain is only strong in bulk. Here we certainly have sufficient mass. The groove in the mesial and distal surfaces of the porcelain receive a metal projecting ridge, as in Figs. 5 and 6, and when in position as shown in Fig. 4. Figs. 7 and 8 represent the crown in assembled cases. The occlusal surfaces slightly show tips of the gold anchors.

In diagram H we have Dr. F. N. Brown's method of giving bulk to the porcelain and also the absolute avoidance of gold display. The system is one which is deserving of careful study inasmuch as it contains elements which make it prophetic of future porcelain crowns. The bicuspid as shown in Fig. 1 demonstrates the additional strength given to the crown when the triangular undercut is nearly filled with porcelain, a small shoulder being left against which to finish the gold or platinum backing. Again, the tooth has three platinum pins, and this is what the artificial tooth of the future must possess, or an equivalent substitute. The pins are so bent over the backing as to firmly hold the latter against the porcelain; and the pins are made in one united piece of metal having three free ends as



Figs. 2 and 3 show. Fig. 4 gives an idea of how the centrals, laterals and cuspids are formed from teeth now in use. Fig. 6 gives a lingual view of these teeth when used in assembled cases. The specimens which Dr. Brown presented me clearly show that the tooth, if it were supplied to the profession, would in a considerable degree obviate repair work and avoid display of gold. The tooth, however, cannot be purchased, as no dental supply house has yet presented it. However, its not being in the market does not in any sense detract from the principle involved. There is no cement or temporary agency of anchorage employed. The crowns are joined by either gold solder or porcelain, according to the construction of the denture.

This tooth, known as the Dentenex, or "holdfast tooth," has been in the market for some few years, but of late has been introduced from England to this country. The tooth has had earnest advocates across the sea, and there is not to-day a tooth manufactured which can compete with it as a universally adaptable crown, and no tooth gives promise of greater esthetic productions. The teeth are so constructed that the porcelain is not only protected from severe strain from the manner of the platinum base, but there is a liberal amount of porcelain surrounding the platinum so as to insure stability to both porcelain and platinum. Figs. 1 and 2 demonstrate the ideal method employed in combining the porcelain and metal, while Fig. 3 shows with what ease the contact surface of the porcelain is ground away to admit of metallic backing. The extending anchor bar after the gold backing is positioned is cut or bifurcated, and the two ends are bent in opposite directions over and across the gold or platinum backing, Figs. 4 and 6. The molar teeth, Fig. 5 are constructed on the same plan and soldered to a gold cope. Fig. 7 gives a view of the contact surface of a flat molar, or what is known as a short-shut-tooth. Fig. 8 illustrates a lingual view of a bicuspid, showing how the gold backing extends up on the porcelain to assist in preventing lateral yielding of the tooth. In Fig. 9 we see these teeth as they appear in assembled cases. In the centrals we have an approximation to the Logan crown. There is no metal backing and this gives the artificial substitute a lifelike translucency which makes it an excellent tooth to employ in labial cases. These teeth can be readily adjusted to individual crowns, assembled cases, or used in connection with plate dentures. In my estimation the Dentenex teeth are the only teeth which can be purchased and give results which harmonize with the prevailing tendency of constructing artificial dentures with porcelain as its distinctive characteristic.

The samples of these various dental devices are here on exhibition, and in describing these processes I have completely disregarded the inventor's nomenclature and manner of description as well as the diagrams for illustrating, relying on my personal knowledge of the work, and have given considerable time in testing the strength and correlative data in connection with their applicability to the process under consideration.

And in testimony of the high regard for the honor conferred by both the society and the program committee, I have diligently sought to give a liberal résumé of this most complex subject, and trust I may have in a measure fulfilled your expectations.

ROTATING TEETH—PRINCIPLES AND APPLIANCES.*

BY F. L. SMITH, D. D. S., CHICAGO, ILL.

A very common form of irregularity of the teeth, and one which we, as dentists, are frequently called upon to correct, is that in which a tooth is rotated or turned on its axis.

For a great many years, various methods and appliances have been used by different men in the correction of this particular kind of irregularity, but it is not my purpose this evening to dwell upon the history of such cases. While it may be interesting to know the history of certain cases, how, and by whom they were corrected, it is much more important that we should understand the principles which will enable us to construct any appliance for rotating a tooth. To understand these principles, we should be familiar with the simple laws of motion and the principle of levers; also the result of applied energy, and the kind of apparatus that will serve our purpose to the best advantage, in converting this energy into work to be done upon the tooth and alveolar process. The principle upon which a tooth is rotated is practically the same as that of the wheel and axle, or some modification of it. Let us take, for example, the pilot wheel. Let the tooth be represented by the axle; the band, which is cemented to the tooth, by the wheel; the hook or tube which is soldered to the band, to serve as an attachment for our force, may be represented by one of the handles of the wheel.

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*Read before the Odontographic Society of Chicago, November 20, 1899.

Let the alveolar process, which is attached to the root of the tooth by the peridental membrane, be represented by the rudder, which is attached to the axle by means of the tiller.

As the tiller and rudder are moved by the turning of the wheel, so, in a similar manner, the peridental membrane and alveolar process are acted upon, and gradually changed as the tooth is turned.

The methods by which the necessary force may be applied depend upon the location of the tooth and the amount of force required to move it.

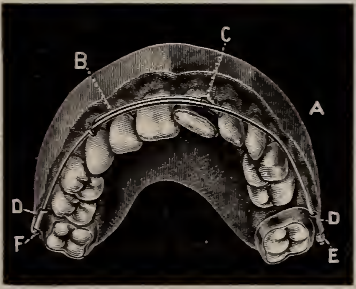

FIG. 1.

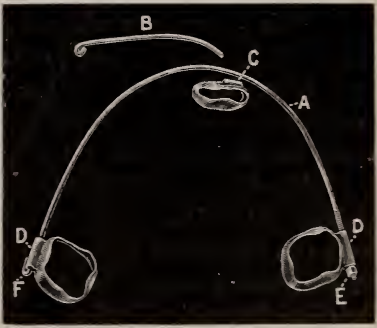

FIG. 2.

For the anterior teeth, the best method is that of the simple alignment wire and the spring rotating wire. (Figs. 1 and 2, a and b.)

These wires are drawn from a German silver wire, No. 9, Brown and Sharpe's gauge, which gives to them the proper temper and elasticity.

Suppose the tooth to be rotated is an upper central with its labial surface turned toward the distal. Band the central and a molar tooth on each side of the arch, using thin German silver banding material, which is rolled from a No. 9 wire. The molar bands should be 37 or 38 gauge and the central band 39 or 40.

These bands are pinched on the teeth in the mouth with a pair of flat-nosed pliers. Then they are soldered with a high fusing silver solder, and to the central band on its disto-labial surface (in this case) a little above the center of the band and parallel with it is soldered a small tube (c) about one-eighth of an inch long.

This tubing, which is drawn from 36 gauge banding material, should fit a No. 22 wire closely. To the buccal surface of the molar bands, midway between the center of the band and its gum border, solder a tube (d) which extends the full length of the buccal surface of the band, and is the proper size to admit the threaded end of a No. 20 wire. This tubing is drawn from No. 28 gauge German silver plate. The bands having been properly finished and cemented to the teeth, take the alignment wire (a) No. 20, which is threaded on one end, and carefully shape it in the form of an arch which is fully as small as the one on which it is to be placed. This is done by holding the wire in both hands and gradually springing it together, at the same time allowing the thumbs to slide along on its inner surface.

This procedure will not only give a better shape to the wire, but will lessen its tendency to spread the arch. It is then cut off, being left a little longer than the distance around the arch, extending from the distal end of one tube to the distal end of the tube on the opposite side.

Having annealed the unthreaded end, place the wire in the tubes (dd), allowing it to project at each end; now, adjust the nut (e) by means of a pair of foil carriers and the index finger of the opposite hand. Then grasping the annealed end (f) of the wire with a pair of pliers, bend it back over the tube, allowing it to rest in the angle formed by the band and tube.

This wire is threaded in the No. 11 hole in the Martin screw plate. The tap for threading the hole in the nut being the same size as the wire, is threaded in the same hole in the screw plate. Now let us take a piece of spring rotating wire (b) No. 22, which is about one inch and a half long, and, having slightly annealed one end, bend a small hook on it with a pair of round-nosed pliers. Then grasping the hook with the pliers, bend it at an obtuse angle with the wire, having this second bend close to the hook. Having done this, place the straight end of the wire in the rotating tube (c) on the central band, and carefully spring the other end downward; hook it over the alignment wire. As the tooth begins to move and the rotating wire tends to straighten out, the hooked end is permitted to slide along on the alignment wire. The free movement of the rotating wire and the position of the alignment wire prevent the tooth from being carried labially. The rotating wire then serves the purpose of a spring and a lever. As a spring, it acts somewhat on the principle of the mainspring in a watch. It also acts, to a certain extent, as a lever of the first and second kind. Our force in this case is stored up in the spring of the wire in the form of potential energy, which is gradually converted into kinetic energy as the power overcomes the resistance.

The real work is done upon the peridental membrane and alveolar process, while the reaction of the energy is sustained by the molar teeth, to which the alignment wire is attached. It is often advisable to solder to the lingual surface of the molar bands, a bar (Fig. 6 u) which rests against the adjoining teeth, to prevent the molars from being thrown buccally by the force upon the alignment wire.

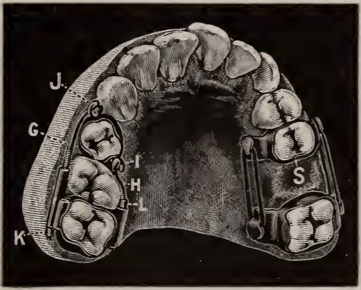

Fig. 3.

If the tooth to be rotated is a bicuspid or a cuspid which moves unusually hard, it may be done by applying two positive forces to it, one pulling and the other pushing. (Fig. 3, g and h). In this case, two molars may be banded if they are present, and the bands soldered together, forming an anchorage appliance; or if less force is required, one molar may be banded, to which is soldered bars that rest against the adjoining teeth, to keep the molar from rotating. The bands are then fitted to the teeth and a plaster impression is taken. They are then carefully removed from the teeth and placed back in the impression which is filled with some investing material. Now, solder to these bands, close to the gum border, two tubes, one to the buccal and the other to the lingual surface.

These tubes should be the proper size for a No. 18 wire, which corresponds to the No. 7 hole in the Martin screw plate. Suppose the buccal surface of the bicuspid is turned mesially and the lingual surface distally. Band the tooth, using about

38-gauge banding material. To the disto-lingual corner of the band, near the gum border, solder a hook (i) which is bent somewhat the shape of a C and looks toward the distal.

To the mesio-buccal corner of the band is soldered a similar hook (j) which looks toward the mesial. Extending from the tube on the buccal surface of the molar bands, is a traction wire (g) of the size mentioned which is provided with a nut (k) at the distal end of the tube. The mesial end of the wire is bent in the form of a hook which engages with the hook (j) on the bicuspid band.

Extending from the tube on the lingual surface is a jack-screw wire which is provided with a nut (l) that works at the mesial end of the tube.

To the mesial end of this wire is soldered a U-shaped piece of wire which engages with the hook (i) on the bicuspid band.

As these nuts are turned against the ends of the tube, we get a pulling force on the buccal side and a pushing force on the lingual.

Thus we have two equal forces if both nuts are turned alike, both tending to turn the tooth in the same direction. At the same time one counteracts the other, so that the tooth can neither move forward nor backward, but must travel in a circle. In the same way the two forces on the molar teeth counteract each other and the molars are prevented from rotating by being soldered together.

This method of turning a tooth is a perfect example of the turning of a pilot wheel; the two hooks on the band representing two handles of the wheel, and the two wires, one pulling and the other pushing, represent the two hands which supply the power. By allowing these hooks to stand out from the band a little, the diameter of our wheel is increased, so that we are able to get a greater leverage on the tooth.

The diameter of the wheel can be increased still more by soldering to the band upright bars which extend above the gum margin, then soldering the hooks to them.

This is often done where it is desirable to remove the root of a tooth in a certain direction. In some cases the forces may both be traction forces, pulling in opposite directions; and instead of the wires rubber bands or ligatures may be used. (S, Fig. 3, is an appliance for retruding the bicuspids by means of rubber bands attached to hooks on the upright bars.) There are various other schemes and contrivances for rotating teeth, of which we might speak, among them being the reciprocating jack and traction screw. (Fig. 4 and 5, m, n). This is made from No. 18 wire and tubing. A hole is drilled through the side of the tube (m) about one-fourth of an inch from its distal end; then it is rimmed out diagonally, or as nearly parallel with the tube as possible, making a groove for the reception of the wire.

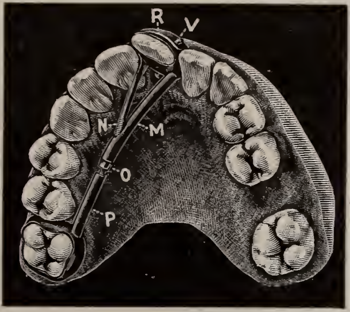

FIG. 4.

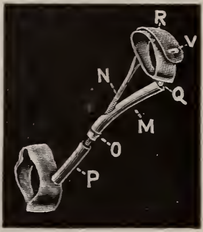

FIG. 5.

The threaded end of the traction wire (n) is then put through the side of the tube and allowed to project from its distal end.

The nut (o) is then put in place and screwed onto the wire about one-eighth of an inch.

Suppose the tooth is an upper central or a cuspid with its labial surface turned toward the distal. Band the tooth and a molar or bicuspid on the opposite side, using thin banding material.

To the mesio-lingual corner of the molar band, close to the gum border, solder a tube which is the same size as that of the jackscrew (m) and on a line with the central. This tube (p), which is about one-half an inch in length, is to serve simply as a rest for the distal end of the traction wire (n), which should not extend into it more than one-eighth of an inch at first. The mesial ends of both the wire and the tube (m) are then cut off, being left just long enough to reach the lingual surface of the central band. To the disto-lingual corner of the central band is soldered the end of a No. 19 wire, which is one-eighth of an inch long. This pin (q) which is to serve as a rest for the jack tubes, should be soldered close to the gum border of the band and be in a direct line with the tube. To the mesial end of the traction wire, which is flattened, is soldered a piece of banding material No. 38. This strap (r) is then passed between the centrals and either soldered or buttoned to a pin (v) on the disto-labial side of the band. When the appliance is put in place and the nut (o) is turned against the tube (m) we get a pulling force at v and a pushing force at q, both acting on the same tooth.

With this appliance we not only get rid of the force of reaction on the other teeth, but are able to use it as our second force in rotating the tooth. One force reciprocates the other and we might say the tooth is made to turn itself.

This appliance, though simple, is very effective and is especially indicated in cases where two teeth are to be moved, and we wish to make one move the other.

If both centrals are rotated and one needs to be protruded and the other retruded, the appliance may be attached to them in such a way that it will correct both at the same time. (Fig. 6.)

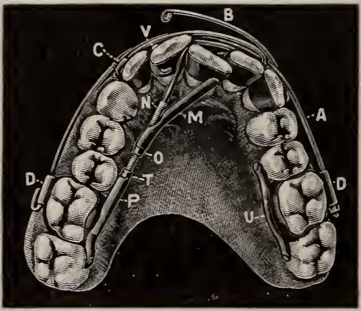

FIG. 6.

The traction band in this case is attached to the pin (v) on the right central, and as the left central needs to be moved more than the right two nuts are used; the nut (t) being loosened about half as much as (o) is tightened. The right central may also be controlled by a ligature on the distal side extending from the alignment wire to a hook on the lingual side of the band. These particular methods and appliances were first used by Dr. C. S. Case, to whom I am indebted for all my instruction along this line.

If we would correct irregularities of the teeth, it is important that we be able to construct the necessary appliances in order that we may more fully understand how to use them. No man can successfully regulate teeth if he has to depend on some one else for his appliances, any more than he can make a success of crown and bridge work if he is not familiar with all the details of construction and is not able to meet the needs of each particular case.

SOME THOUGHTS ON DENTAL PROSTHESIS.*

BY E. J. PERRY, D. D. S., CHICAGO, ILL.

The proper laboratory or prosthetic studio, to my mind, is an important factor in its effects upon the dentist and in the creation of artificial substitutes for the lost dental organs. I have often spoken on this point to students, and I have had a quiet acquiesence in the foregoing sentiment by practitioners, but it has not, that I know of, amounted to a conviction. How does one acquire an appreciation of classic music? Not by permitting the ear to accustom itself to trashy music—not at all. The ear and the brain accustomed to cheap, trashy music, cannot grasp the beauty, nor does it even hear those divine harmonies which lift the soul of one who can hear, on wings heavenward. I have seen men go sound asleep in the presence of the most heavenly music, who, perhaps, would grow wildly enthusiastic over Yankee Doodle or a clog dance. The true value of art in music when properly interpreted can be found in the mental activities and in the ennobling emotions and uplifting inspirations. The influence of art when applied to the soul and mind of man is beyond compute. The student in art spends his time in the great art museums, and the very atmosphere of his surroundings inspires him with art conceptions. While the artist may be born, still in a large measure it may be said that environment is a most potent factor in his development and acquirement. Now if this is true, how shall we, as dental prosthetists, develop and acquire art? Manifestly we shall best grow in the appreciation of the artistic in artistic surroundings. How often do we see the prosthetic studio in a dental office a little corner fenced off, the whole conveniences consisting of a cheap bench, plaster barrel, some drawers or shelves, a lathe, vulcanizer, etc. The dentist abhors this place; to work here is monotonous druggery. Yet here is where he is to create or design, to fill a want or to supply a need in his business requiring the highest expression of art. I hold that the prosthetic studio parallels in importance the operating room, and that its artistic arrangement and working conveniences has an important bearing upon the artistic and mental attitude of the dentist.

Another thought which ought to receive emphasis is the relative value of art and mechanics in dental prosthetics. The highest value manifestly in a picture is not in the canvas and frame, but its great and incalculable value is in the art applied. Just so it is with a set of artificial teeth, assuming that correct mechanical principles have been observed in their construction. The highest value is to be found in the art applied—the individualizing to fill the requirements of the case.

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*Read before the Odontographic Society.

Now, if the art is the most valuable, how shall we put it in there? If we are to save prosthetic work from being lost, we must take it in. And our work must stand out so that the world can see it in contrast with the cheap dental parlor work. Let us not flatter ourselves that the world don't know the difference. Our patients know more on this line than we often credit them with. We can learn much from them. But in the main we should get there by study. The arch, the lips, the face, the complexion, the eye, these separately and together will tell us all if we can but find out how to ask. Therefore, if we are to reclaim prosthetic work from these vultures, we must study to put into it this most valuable quality.

A vast number of chromos have been sold, but artistic paintings are still of great value. The painful part of it is, however, the artist sometimes has sold chromos to the unthinking for oil paintings. If we are to get the job we must put something into the work which they (the cheap Johns) *cannot* put in. And that thing is *art*. And if we don't put art into this work in good measure we have no kick coming if the aforesaid cheap John gets it all. It simply resolves itself into a question of business enterprise.

Now, a thought about recommending the best work to patients. Many patients can be induced to have continuous gum work. The trouble I fancy is not with the patient. It is with the dentist. You don't have confidence in yourself. You lack conviction, and when you do, don't fancy you will ever convict any one else. You won't. The dentist will say to his patient that continuous gum or porcelain is best when he don't believe it himself. He has heard so. He is not qualified to do it. He don't understand why he fails to convict his patient. Conviction is born of conviction. And in order to impress our patients with our sincerity we must be sincere in the first instance ourselves. And this same sincerity only comes with downright competency and a complete and overwhelming mastery of the subject. The laity see this quickly, and its results are manifested in the improved standard of the dentist's prosthetic work.

Now a thought about bridges. I protest against long bridges or long spans. I protest against a bridge resting on the third molar below, and no intervening piers between it and the first bicuspid, especially if the antagonizing teeth above are good and strong and the first molar is elongated or pushed down because of its long lost opposition. This kind of a bridge is often seen, and in a large measure they fail and the failure is inherent in the case. These teeth are poor abutments as a rule, and the stress of mastication is too great; loosening of the roots is inevitable in two or three years. I also protest against the saddle in a general way; if the fixture is wide enough to be called a saddle I am against it, if it is very narrow and is not a saddle I favor it. If a saddle is designed by the dentist to assist in resisting the force of mastication jointly with the piers and abutments, I hold it to be an abomination, most especially in lower cases where the muscles of the cheek are partly attached to the ridge. No matter if they are perfect in fit, and are set into the tissue a trifle. I do not know but this is even worse. It is all very good to restore the lingual surfaces of the teeth. But the disadvantages of the case so made far outweigh this. If the saddle is a round platino-iridium wire designed for attachment of the porcelain and strength I favor it. But it probably is not a saddle. I may not care particularly if the space is not clear under the bridge. But I do not want much of the ridge permanently covered. Most especially do I protest if it is so saddled, on the theory that it will for any length of time divide with the abutments the force of mastication, and if it does not perform this service, there is no adequate excuse for putting it in. Sufficient bulk of porcelain can be had by other means, and if not, then use gold. I again want to protest against the very common practice of swinging onto a molar a bicuspid, or to a bicuspid a cuspid, or to a cuspid a lateral incisor. Only in the rarest instances is this permissible, there being no objection when the case carries two or more abutments.

A word in conclusion about the seamless gold crown. It is claimed that by making gold crowns by this method that a more perfect reproduction of the shapes of the original teeth is possible and in shorter time; if these claims cannot be sustained then the mere fact that the crown is seamless does not justify one in making them so. In my judgment the claim is more than sustained. The method of making the split die, suggested by Dr. Hebert, has made it possible for the dentist to turn out very beautiful and natural shapes in quick order himself. The modus operandi is first to fit a band of 30 gauge copper, soldered with silver solder. If but little contouring is required this can be done in the band in part. This band is then filled with wax or modeling compound, the patient instructed to close the teeth upon the band so filled, thus obtaining the imprint of the opposing teeth. This then is chilled, and the whole removed. Dry with blower and run into stump end of the band some wax, which, when cooled, will secure the band to the modeling compound. Now carve this up into cusps, preserving enough of contact surface. Make a split die in plaster as follows: Pour on a glass slab a small quantity of carefully mixed plaster. Set your model, cusps downward, into it to the edge of the stump end. Now take two pieces of cardboard, slip them through the plaster up to near your model on opposite sides. When hard, this will fracture just where the two pieces of cardboard are, and you have a split die of plaster. Take out your crown model, remove wax and modeling compound; place your copper band back into die, and fill into it mouldine tightly, leaving it flush on the stump end for a stem for future use. Open your die and you have simply reproduced in mouldine the modeling compound or wax used in the mouth, and later as your model. You can cast fusible metal on mouldine with invariable certainty. You cannot on modeling compound or common plaster. Another method is to fit a narrow band, take an articulation in modeling compound, mount on crown articulator and fill into the band mouldine and carve your tooth and cusps in mouldine. All the lines, grooves and fissures can here be produced in mouldine, and only that portion of the band which fits the root is exposed in your model. The making of the split die in fusible metal is but a small matter. A brass ring, with a larger diameter at one end and two grooves opposite each other on its inner surface is needed. Fit a card into this groove. Now cut out the card so that you can set it down over your model without touching it, then pour in your fusible metal. Your die when knocked out of the ring will easily break on a line of the cardboard; take out your crown model; place die back into ring; now your cartridge of 22k .30 gauge gold is placed into the die and with sand or shot swaged to place. Trim off edge of crown to the line made in the mouldine composing the stem of your model; polish, etc. If your original band fits, your crown will, and you will have produced by a short route a perfect crown. If you desire to thicken the cusps, to be absolutely safe place the crown in position, let patient bite, taking the precaution to anneal the crown first. If not just right, the opposing teeth will slightly indent the annealed crown. Then remove flux and fuse in some solder. I like this way very much of producing gold crowns, and I think it marks a distinct advance in this line of work.

SOME IDEAS IN CROWN AND BRIDGE WORK.*

BY F. N. BROWN, D. D. S., CHICAGO, ILL.

It affords me great pleasure to come before you this evening with some ideas upon a subject that is of considerable interest at this time to most, if not all practicing dentists. If the subject presented in this paper does not prove as interesting as we might desire, it will at least be original, and I trust will be productive of lively discussion.

Some three years ago I began some experiments with the object of doing away with gold cusps in bicuspids and molars, and the appearance of gold on the anterior teeth in crown and bridge work. Taking the Logan crown as a model by which to work; for I believe the Logan crown more nearly approaches the natural teeth in conformation than any artificial tooth we now have, and coupled with the idea that the means of attachment, post, pins or otherwise should be an integral part of such tooth intended for crown or bridge work, and proceeding along this line of thought, I have devised a tooth that does away with all appearance of gold along the occlusal surface, and at the same time is built on true mechanical as well as aesthetic principles.

By reference to Fig. 7, you will see that the tooth has a peculiar pin block providing three pins to each tooth. "C C" are the sub-shoulder pins and constitute a half circle, loop or staple in shape, upon which rests the upper half of the tooth. Attached to this staple or platinum loop at its center is the third pin " D," which passes down through the body of the tooth and is located directly under the point of stress or force of occlusion, offering a support on the same principle as the post in the Logan crown. The tooth should be practically a reproduction in size and contour of the natural teeth, except that it is cut away or shouldered on the approximate and lingual surfaces (see Figs. 1, 2) leaving the cusps or occlusal surface the full width. This description of the peculiar shoulder formation is true of the bicuspids and molars, while the cuspids and incisors (see Fig. 8) have the approximate shoulders extending upwardly toward the incisive edge, forming an acute angle (see Fig. 8, A a). This construction is intended to enable the tooth to better withstand vertical pressure.

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*Read before the Odontographic Society.

Fig. 1

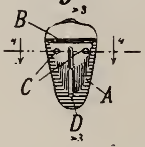


Fig. 2

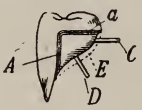


Fig. 3

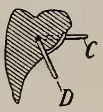


Fig. 4

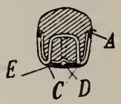


Fig. 5

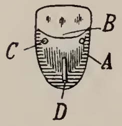


Fig. 6

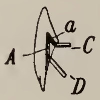


Fig. 7

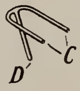


Fig. 8

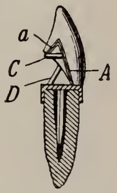


Fig. 9

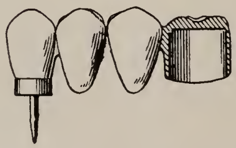


Fig. 10

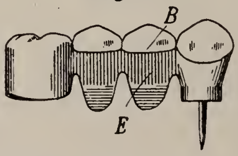
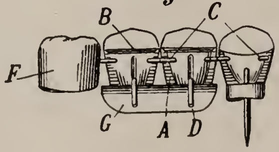


Fig. 11



Practical application of the tooth: We will assume that a sufficient supply is obtainable from which to select for any particular case. If for a crown on a Richmond base, you would proceed as in Fig. 8, back tooth up with thin platinum or pure gold, bend pins "C C" over backing on approximate surfaces, and pin "D" down until it rested on the cope; invest and solder. These simple instructions will appeal to any one who has constructed a Richmond bicuspid. For bridges you proceed in the same manner, except the third pin, "D," is bent up and rests on the backing. Having assembled the crown or "dummies," you invest and unite the whole in one soldering, saving an enormous amount of time in the absence of *all* cusp work, as well as soldering each "dummy" up separately and afterward uniting the whole as a bridge.

The tooth is equally useful for all porcelain crowns, porcelain bridges, as well as continuous gum work. Fig. 11 shows in an indifferent way the proper procedure. Pins "C and C" are bent out until they meet the pins "C and C" of adjacent tooth, and so on, giving a continuous attachment from column to column of support; pins "D" are bent downward until they rest on the platinum saddle, the whole being united by soldering with pure gold or platinized solder, when it is ready for the porcelain body. In continuous gum work, as well as the porcelain bridges, the platinum "backing stays," No. 29 gauge, and used as in ordinary continuous gum teeth, and can be added if desired, and would no doubt increase the strength of the work. The porcelain bridge constructed with these teeth does away entirely with the necessity of carving up, which is beyond the skill of the ordinary workman, and at the same time detracts materially from its strength.

In closing, allow me to call your attention to this particular point: The anterior teeth are backed up only about two-thirds of their length, leaving the incisive edge free from all metallic covering, and thus preserving their original translucency and at the same time doing away with any likelihood of cracking or fracturing in soldering, from the presence of a metal over the incisive edge.

CONSERVATIVE TREATMENT OF EXTENSIVELY CARIOUS BICUSPIDS.

BY E. J. HART, D. D. S., MADISON, WIS.

In professing a specialty in any branch of the healing art, one assumes certain obligations that cannot in any degree be ignored without entailing injury both to himself and to those who trust themselves to his professional care.

While the specialist is supposed to have a general knowledge of the entire organism, he professes to have the fullest possible understanding of the tissues included within his special field, and to be possessed of a skill requisite for an intelligent treatment of the abnormal conditions to which such tissues are peculiar. Furthermore, he professes to strive constantly and in each case to attain to perfection, regardless of his personal comfort, his profit or the opinions of his patients.

That dentists do not always appreciate fully their responsibilities; that they frequently fail to employ their best efforts, and that they are inclined to regard as of less importance those operations the result of which are not plainly in view, is evidenced in a particular manner by the deplorable condition in which we frequently find the bicuspid teeth; discolored from ill-formed and leaking amalgam fillings, patched with crumbling cement, crowned with loosened Logans, and unsightly and unsanitary gold caps, or their entire loss supplied by porcelain teeth on rubber plates. And what is still more depressing, these conditions are frequently found in the mouths of patients, the operations in whose incisor teeth show that the dentist in charge was abundantly capable of rendering intelligent and adequate services. Why, we ask ourselves, are such conditions so frequently found ? Have we mapped out too large a field for our specialty that all parts thereof may not receive full attention? Should we limit our efforts to the insertion of small gold fillings in the incisors, and to the making of rubber plates ? It cannot be that poverty has compelled all these people to choose such service, for we find these conditions alike in the mouths of all classes. Is it through lack of energy, or from indifference ? Or is it rather brought about through timidity and diffidence in the first years of practice, inclining the young dentist to resort to the plastics and to temporizing, and finally, owing to the difficulty always found in attempting to change one's practice, permitting this to become a fixed manner of operating ?

Many of these operations would seem to suggest that the operator was controlled by an inherent lack of order and cleanliness, such as is found in the offspring of the tenements or of the wilfully poor. In the homes of such we would expect to find the rooms unkempt and unclean, except perhaps the one room where strangers might chance to enter.

All these are factors tending toward adverse results—hopeless incompetence and dishonesty we will not consider. I believe however, the main causes are to be found: 1, in a low professional standard; 2, lack of ideals; 3, lack of energy and enthusiasm to strike under difficulties to attain to ideals.

A full appreciation of the obligations assumed in the profession of a specialty of the healing art should, it seems to me, cause a man to hold as sacred that portion of "God's noblest creation" which he professes to treat; should lead him to insist upon the manner of treatment which he knows to be best and prevent his being led into other lines by the whims, the ignorance or the vulgarity of his patients. His obligations are primarily centered in the tissues requiring his services. He alone is to decide what he shall do and how it is to be done. A strict adherence to these principles tends strongly towards ethical elevation in his patients—the reverse is demoralizing.

It should not be a question of the relative intrinsic value of the materials that may be used, but of the advantage or the necessity of using a certain material in order that the result for which we operate may be accomplished and maintained. It is the fitness or adaptability of a material as a means to accomplish a desired result that alone gives it value, and patients should be brought to take this view of the means employed. The dentist must live by his practice and from it also must make provision for his period of age and infirmity, and, therefore, cannot to his own loss employ expensive material or much time for which his patient, through poverty, is unable to pay. Again, we frequently operate for those who are desirous of economizing on their dental operations in order that they may use their slender means in acquiring the higher things of life, as with students. Also those who are self-sacrificing that they may fulfil obligations they are under, as in the care for relatives or the education of children. Another class—a very large class—are those who would economize on their teeth as they economize in other things—from low motives, disregarding things out of view that they may add to the adornment of the exterior.

The economy of the first class is commendable, though not always wise, and a dentist finds no difficulty in using his best efforts in the treatment of their teeth by methods within their means.

In conforming to the wishes of the second class, however, a dentist deliberately becomes a party to their vulgarity; is operating only for hire; has no incentive to do his best, and has lowered himself and his profession even in the estimation of these very patients.

Some dentists will say that the class of patients for whom they operate cannot afford the expense of proper dental services. Young practitioners often avoid insisting upon rendering what they know to be appropriate service, fearing to lose patronage, and yet those patients do not hesitate to spend from $7 to $15 twice a year for bonnets, or even ten times that amount for tobacco, etc. Let these same people come under the influence of a dentist having the proper professional make-up and they quickly imbibe from him an enthusiasm in the ethical care for their teeth, and are benefited both materially and morally. Our practice is precisely that which we are determined it shall be—clean or unclean, a civilizing influence or an influence fostering vulgarity.

Only let a dentist have correct, clearly defined ideals, coupled with the enthusiasm, determination and energy to advance unwaveringly toward their attainment, and he need give himself no concern regarding patronage.

In deciding upon a plan of treatment in cases of extensively carious bicuspids we are always to bear in mind that our vocation is to conserve tissue—to save.

The skillful surgeon is the surgeon skilled in averting capital operations, and who, when an operation becomes imperative, still strives to limit the extent of the destruction.

Many dentists are quite indifferent as to whether they save the remaining portion of such teeth or resort to excision and crowning. If the appearance of an exposed amalgam filling is objected to, extraction or crowning are often the only alternatives suggested. This is entirely wrong, viewed even from an economic standpoint. The usual fee exacted for a porcelain faced crown, or even for a gold cap crown, is frequently ample compensation for the restoration of such a tooth with gold foil. And if the margins are properly outlined and the interproximate spaces are protected, the result, in comfort, appearance and durability, exceeds that of a crown.

The form of the bicuspids, and the usual manner of their occlusion, render amalgam in these teeth almost always wholly unsuitable for a permanent filling, and yet, when gold foil is the filling material used, these same peculiarities of form and of occlusion afford decided advantage in obtaining anchorage and stability for large restoration.

These broken down bicuspids may be divided into two general classes, with modifications that change slightly the operation in detail, but do not affect the essential plan as a whole.

The first class includes bicuspids that are carious on one approximal surface only.

The second class includes those that are carious on both approximal surfaces and the occlusal surface also.

The main points to be observed in preparing teeth of either class for contouring are:

1. A solid foundation upon which the gold may withstand force in the direction of the long axis of the tooth.

2. Anchorage to withstand the opposite, or direct lifting force.

3. Such anchorage or clasp upon the tooth by the filling that all frail walls and margins may be protected from direct strain and the entire strength of the remaining tooth structure utilized to resist lateral force.

A gold cap crown can possess no more stability than that which is afforded it by the tooth to which it is attached, and is firm only to the extent that it distributes the force of mastication uniformly throughout its attachment. In like manner large gold restorations are strong or frail in proportion as they, too, serve in opposing the entire remaining strength of the tooth to the forces of occlusion.

In order that the fillings in these teeth may be an element of strength rather than of weakness the use of grooves, for anchorage, in the lateral walls must be abandoned, and in their stead reliance is to be placed upon the clasp, or grip that may be given the gold when properly condensed upon parallel or perpendicular walls of dentine, and its grip upon horizontal steps or shoulders when such grip may be increased by direct force in occlusion.

In preparing for contouring a bicuspid of the first class having the dentine of one approximal surface destroyed to the extent of one-half of its occlusal surface, with lateral walls too frail to afford anchorage, and containing a healthy pulp, anchorage to resist labial force may be obtained by cutting down the remaining portion of the palatine or lingual cusp to an extent that will admit of a sufficient thickness of gold between this shoulder and the occluding tooth to withstand the full force of occlusion. It is essential that the force of occlusion shall fall squarely upon the gold extending over this shoulder for the reason that properly adjusted gold in such position is rendered immovable in proportion to the amount of direct force brought upon it, and is not tended to move from its position until the line in which the force is directed falls below forty-five degrees from the perpendicular of the plane on which it rests. The possible variations in the direction of the force of occlusion upon a tooth or filling may be changed by contouring or by grinding the opposing tooth.

To supplement the foundation for the filling afforded by the shoulder, or step, a square shoulder may be formed at the cervix extending from the buccal to the lingual angle, and slightly grooved its entire length. At the buccal and lingual extremities of this shoulder an extension may be made to come slightly under the bulging portion of the crown to anchor the filling against lifting force. This anchorage may be supplemented by a slight undercut in the base of the buccal cusp at the buccal extremity of the occlusal shoulder, for in bicuspids of this class having vital nerves, the axial wall inclines at such an angle from cervix to occlusal surface that the gold can be given but slight hold upon it.

All surfaces of the cavity should be fully smoothed and polished. No abrupt angles or depressions are to be left, except where such angles or depressions are to serve as anchorage. This greatly facilitates the adapting of the gold to the surfaces and insures accurate work. The frail palatine or lingual wall should be freely cut away on such a curve that foil may be readily and safely adjusted to it.

In trimming the buccal margins, however, the cutting is to be directed by considerations other than those of utility and expediency alone—the esthetic—for upon our treatment of this portion of the tooth depends the artistic excellence of the operation as a whole. We are to save as much of this buccal surface as is consistent with thorough operating, and yet should cut it away until its outline conforms to the outline of the tooth at that particular segment on which we are cutting. The object in cutting the margin in this manner is that it gives the visual impression of a perfectly formed tooth slightly rotated on its long axis, or of an undersized tooth standing apart slightly from its next in line. Against a dark background the outlines of the light colored portions of objects stand out clearly and at once; the dark portions are discerned slowly and indistinctly. In the intermittent, momentary views we have of the teeth such a filling is but slightly noticeable. The impression given is of a properly shaped tooth coupled with the undefined glisten of gold. If the margins are cut away squarely, or at some angle, leaving an unnatural outline, the eye is attracted by the deformity, or departure from the usual at once, and the impression formed is always unpleasant, for we have an inherent antipathy to the abnormal in our fellow beings.

The proper outline for these buccal margins may be seen by allowing rays from a strong artificial light to pass through a small hole in cardboard so as to fall only on the buccal surface of a bicuspid. Then by slowly rotating the tooth the varying outline will be clearly shown.

In preparing a bicuspid of the second class having both approximal surfaces destroyed, and the occlusal surface carious also, we may prepare the cavity and margins as detailed in class I, except that in this case the filling is made continuous by being extended over the occluding surface. The palatine, or lingual cusp is shortened, and if the buccal cusp is frail, or the opposite tooth occludes dangerously near, it, too, must be shortened and protected by building the gold to extend over it. If the tooth contains a healthy pulp, it will often be found that the filling can be more readily started in one cavity than in the other. In that case it is often advisable to fill one side even with the occlusal shoulders and then build down to the cervical shoulder in the second cavity, using heavy foil for that purpose. When the nerve has been removed the pulp chamber or canals may be utilized in starting the filling and in affording anchorage.

Noncohesive foil should be packed against walls difficult to reach directly and heavy foil may be used throughout the operation whenever practicable. It saves time and gives rigidity. Always attach the dam to the first molar in contouring either bicuspid, so as to have a clear view of both teeth. Do not use a matrix.

Gain ample space by the use of gutta-percha, extending it latterly so as to entirely expose the cervical margins and depress the gum septum uniformly. It will then, after the operation, fill the gingival space in a normal manner without having a central depression, as is frequently the case when narrow packing is used.

At the time you are to pack the cavities with gutta-percha take an impression of their occluding teeth, and extending it over the first molar, make a neat model.

Before applying the dam study the occlusion, and movements of mastication, and find the exact adjustment of the plaster model. It will enable you to build the occluding surface to just the proper form and extent instead of building at random.

CARE OF FRACTURED LOWER JAW.*

By JOHN G. HARPER, D. D. S., ST. LOUIS, MO.

When called upon by the executive committee, I had charge of a patient with a broken lower jaw, and gave the title, "A Case of Fracture of the Lower Jaw," but the program was put forth with "Care of Fracture of Lower Jaw." This title suggests a broader subject.

Who should have charge of such cases, the general surgeon, or the surgeon dentist? All of these cases fall first into the hands of an M. D., who as a rule calls in a surgeon. The reason for this procedure is generally due to ignorance regarding the ability of dentists in treating such cases, also very few public institutions have a dentist connected with them. The surgeon uses bandages and does not expect to restore the original articulation existing previous to the fracture.

What is the remedy for this state of affairs? Recently the appointment of dentists to the army has been urged. Military men favor the movement, as they have felt the need of the services of the dentist in caring for their teeth. In time of peace soldiers are perhaps more subject to accidents than citizens. The accident may result in a broken jaw. Should dentists be appointed to the army, then our hospitals would awake to the need of our services.

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*Read before the St. Louis Dental Society, October 10, 1899.

But few dentists have paid enough attention to this branch. Given an opportunity men would be stimulated to qualify for such practice.

It is useless to tell dentists they are the men to take charge of the class of cases under discussion. Only the dentist can construct and apply an interdental splint. Bandaging or wiring together the broken bone does not appeal to the dentist as the most desirable mode of procedure. Here I wish to ask a question. What would you do in case you were called in to assist or take charge of a case of fracture of the lower jaw?

To those who wish to become posted upon what I consider the best means of managing such cases, I would recommend the study of " Fracture of the Maxilla " in " Angle's System of Regulation and Retention of the Teeth and Treatment of Fractures of the Maxilla."

In case of fracture, about three weeks is generally sufficient for the bone to unite and be firm enough to allow the splint to be removed.

I see by the history of seven cases of fracture of the maxilla given by Dr. Angle that the time varies from twenty days to one hundred and twenty, the average being almost forty-five days. These facts are given as an aid in the prognosis.

In case the fracture occurs posterior to the molars it is necessary to resort to fracture bands, the broken jaw by their aid being wired together. In case the break is in the anterior portion of the jaw the fractured bone can be held in position by the application of the expansion arch, the same that is used in regulating teeth, a number of the teeth being wired or ligated to the expansion arch.

A Case. About December 1, 1898, a locomotive engineer made a miscalculation in jumping off a moving train. He was thrown against a car on a sidetrack with such force that his lower jaw was broken at the site of the left central incisor, the fracture being oblique pointing inward. The railroad surgeon was able to reduce the fracture by wiring the teeth together, but could not retain the parts in position for any length of time.

December 6 the patient was brought to me. Models of both jaws were made. The model of the broken jaw was sawed in two, and an attempt made to adjust the parts so as to represent the jaw previous to being fractured. This could not be done with satisfaction. The first idea was to make an interdental splint of rubber or aluminum. Dr. James P. Harper, who had seen the case, suggested using the Angle expansion arch. With his aid and that of Dr. Grinstead, the railroad surgeon, the appliance was put in place and the fractured parts brought in apposition. The left first and second bicuspids were wired to the expansion arch, to bring forward the left side of the jaw; a wire ligature was passed around the tip of the right lateral (which was a little longer than the two proximal teeth) and around the expansion arch; this when tightened brought up the left part into line. Previous to the application of the fixtures there had been considerable constant pain, which disappeared. The parts seemed to be immovable under ordinary use, but moved slightly when the mouth was open to extreme limit.

The patient resumed his vocation in about three weeks after the appliance was put in place. He visited me once in four weeks until May 17, when the appliance was removed, which might have been done much sooner, but he preferred to have it remain as a safeguard.

Previous to the accident the occlusion was abnormal, the bicuspids on left side not coming in contact, also the first on the right side, the second superior on right occluded its posterior half of occlusal surface on first molar.

At time of adjustment of appliance the left central was quite loose and in a few days a portion of the alveolar process on labial surface was removed followed in a few days by the loss of the tooth itself.

The model of the lower jaw made after the removal of the appliance shows that the space occupied by the missing tooth is obliterated by contraction at the point of fracture. The articulation is evidently as good as it was previous to the accident.

In conclusion I quote the last paragraph from Dr. Angle's book previously mentioned.

"Finally, as all the apparatus possessing any special merit in the treatment of fractures of the maxillæ have been invented by dentists, and their familiarity with the parts, special knowledge of mechanics, and facilities at their command fit them above all other surgeons for this work, I would recommend that the different dental societies throughout the country shall secure appointment of competent dentists, in all hospitals, for the treatment of these lesions, for to them this special line of surgery justly belongs."

Prescription Writing.

By J. P. Buckley, Ph. G., D. D. S., Chicago, Ill.

Some time ago there appeared an article in the *Cosmos*, on "Dentists as Prescription Writers," by Dr. Squires, of Massachusetts, which the ordinary dentists should not only read but study.

It is a deplorable fact that dentists, ground as they are in the sciences and other branches which make the dental curriculum, know, as a rule, so little about prescription writing.

That a dentist should be able to prescribe internal remedies for the alleviation of pain, when the case demands, is expected by his patients, and it is his duty to do so. And when a dentist, as well as a physician, sends his patients to the drug store for medicine, whether it be for internal or external use—it matters not—it should be in the form of a prescription and that correctly written.

As was intimated in the above article referred to, it is not necessary to be able to read Virgil or translate Cæsar in order to know enough Latin to correctly write a prescription. I believe the great trouble is as soon as most dentists find anything has a bearing on or relation to Latin, not having studied the language, they take it for granted that it is useless for them to further investigate.

The dentist should be familiar with the pharmacopeial nomenclature of drugs and their preparations, which are always in Latin. Then they should be able to change those words written in the nominative case in the pharmacopeia to the genitive in the prescription. With such familiarity with the pharmacopeia and the rudiments of Latin, every dentist would be able to correctly and intelligently write a prescription. It is possible for any dentist to acquire this knowledge from books without an instructor. Webster says " Knowledge consists of two kinds: We either know a thing or know where we can find information upon it."

It will, perhaps, seem rudimentary to many to go into the details and analyze a prescription, but, to the most of us, it is these very rudiments which we neglect, and consequently fail to understand.

A prescription is, literally, a written order for something—from *præ*, for, and *scribo*, I write. Its general use, however, relates to medicines, though frequently employed to designate the remedy or mixture itself. In prescribing, the most important considerations are the language and abbreviations—the signs and terms.

The language of prescription writing is primarily Latin, because the pharmacopeial titles are chiefly used in designating remedies. In America, the other features, such as directions for compounding and use, are, perhaps, better written in English.

A prescription may be divided into five parts:

(1.) The superscription, i. e., ℞ For..................
(2.) The inscription, i. e., Tincturæ opii ......ʒj.
Syrupi.
Aquæ cinnamomi aa ℥j.
(3.) The subscription, i. e., Misce.
(4.) The signa, i. e., Sig. One teaspoonful every hour.
(5.) The name of prescriber, his degree and the date.

The *superscription* consists of the ℞ (an abbreviation of the verb *recipio*, *recipe*, which means "*take thou*") and the name of the patient, which latter is too frequently omitted. If patient is a child it should be so stated.

The *inscription* is the most important part. It embraces the names of ingredients and their quantities, which are always written in the genitive. ℞ Quininæ sulphatis would read: Take of quinine sulphate. The rule is to have every word in the inscription terminate in the genitive. However, they are nearly always abbreviated. There can be no serious objection to the abbreviation if it is not carried so far as to involve doubt as to what drug is really wanted. For example, hydr. could be taken to mean hydrargyrum or hydrastis; or when followed with chlor. would mean chloral hydrate (chloral), but could be mistaken for hydrargyrum chloridum; both calomel or corrosive sublimate being improperly, though frequently, so written.

The active constituents of the inscription constitutes the *basis*, both pharmaceutically and therapeutically considered.

The *basis* may be dispensed with "the forming substance," the name of which depends upon the form or consistence of the mixture. For liquids and ointments, "the forming substance" is termed the *vehicle*, i. e., syrup or petrolatum respectively; for powders, *diluent*, i. e., sugar of milk, and for a mass, as pills or troches, *excipient*.

The *corrective* is any drug which is added to modify the action of the active ingredient, as syrup of ginger to some mixtures or capsicum to purgative pills.

The *adjuvant* is a drug added to increase the action of the base and is usually considered a part of the *basis*.

To be able to correctly write the *inscription* not only involves a knowledge of the rudiments of Latin, but a knowledge of chemistry, materia medica and pharmacology as well. Without a knowledge of the dose, the action, the occurrence in commerce and the compatibility of a drug, one cannot intelligently prescribe.

The signs or symbols are used to designate quantities and therefore belong to the inscription and must be discussed here. Of those used for desigating apothecaries' weights, the "scruple" and "pound" are going rapidly out of use. For liquids, the signs represent only the U. S. fluid measure, excepting the *drop*, *gutta*, plural *guttæ*, abbreviated "gtt," which is too indefinite to be employed and should be discarded in favor of the *minim*.

The quantities, except metric, are always expressed in the Roman numerals. Signs for designating the weight or measure of a mixture are sometimes affixed to the last ingredient. The most important of these are : (1) *Ad*, the preposition "to;" ad. ℥ij = to (measure) two fluid ounces. (2) *Quantum sufficiat*, usually abbreviated q. s., as much as is sufficient. Of these q. s. should always be preferred, unless we use both signs, which would be perfectly proper, as q. s. ad ℥ij.

Ana, abbreviated aa, of each, is added when the same quantities are required of two or more ingredients. It should follow the last of these, preceding the quantity.

The *subscription* consists of signs or terms giving directions as to how the *inscription* should be compounded or dispensed.

The *signa* consists of the directions to be written on label and affixed to the package or container. These should never be written in Latin, since no secrecy is here desired as is sometimes in the inscription.

A perfect prescription should always bear name of prescriber, his degree and the date. The date is not absolutely necessary as pharmacists will supply this when filing the prescription, it being presumed the prescription is to be filled the day it was written. The name should be written out in full with your degree, M. D., or D. D. S. Do not write your initials only, as the prescription is often taken to pharmacists who do not recognize your initials or handwriting. It is not always necessary to flourish the degree you may happen to possess after your name, but in this particular instance it is both necessary and proper.

It goes without saying that all parts of the prescription should be written in a plain hand. Some prescription writers think, if they, indeed, give the matter a thought, that pharmacists are able to "figure out" any kind of hieroglyphics. Pharmacists often are compelled to spend hours on a prescription trying to make it out, when unable to confer with its writer.

The writer desires to state in closing that he realizes he has gone into the minutiæ of this subject; but it has been done intentionally, believing, as has been stated, that these minute details are absolutely necessary in this as in all our other work.

No dentist but who is proud to have dentistry classed as a specialty of medicine; yet we cannot expect to obtain that exalted position for our profession unless the members are individually capable of carefully, accurately and intelligently prescribing medicines for the alleviation of human suffering.

PROCEEDINGS OF SOCIETIES.

INTERNATIONAL DENTAL CONGRESS, 1900.

EMPLOYMENT OF TIME DURING THE CONGRESS (A).

	9 to 12 A. M.	1:30to3:30P.M	3:30 to 6 P. M.	8 to 10 P. M,
Tuesday, Aug. 7.	Tuesday, August 7, opening of Schools, Museums, and Dental Exhibits.			The Commission of Organization will receive the National Committees and all members who have given their assistance in the organization of the Congress.
Wednesday, Aug. 8.	Opening session at 9:30 in the Palace of Congresses. Constitution of the Bureau. Opening Address. Addresses of foreign representatives.	(2)	(3)	Reception of Members by the French and Foreign Reception Committees.
Thursday, Aug. 9.	(1)	(2)	(3)	Receptions by the Presidents of Sections.
Friday, Aug. 10.	(1)	(2)	(5)	(4)
Saturday, Aug. 11.	(1)	(2)	(3)	Banquet, (5)
Sunday, Aug. 12.	(1)	Visit to the Dental Schools, Museums and Exhibits open to members of the Congress.		
Monday, Aug. 13.	(1)	(2)	(3)	(4)
Tuesday, Aug. 14.	(1)	Closing Session. Adoption of decisions, rules and addresses.		General closing reception.
Wednesday, Aug. 15.	The Dental Schools, Exhibits and Museums will be open to members of the Congress.			

1. The morning sessions, with the exception of Wednesday, August 8, are reserved exclusively for practical demonstrations, clinics, anesthesia, operative dentistry, prosthetics, museum and exhibits. Therefore it rests with the Presidents of the Ninth, Tenth

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A. This chart is but an indication, and it may be modified by the Commission of Organization.

B. We think it well to recall to the Sections the terms of Circular No. 35, and especially the request that they collect communications of a certain language in the same session, in order to avoid loss of time to foreign members. An understanding between the Sections, as assured by the care of the Secretary-General, will permit of the communications being so disposed that no two speakers in the same language will have the same time in different sections, thus causing the member interested to lose one or the other. In dividing the time, it will be well to observe Articles 9 and 10 in order to avoid grave errors.

and Eleventh Sections to arrange the time to be employed to accord with the Bureau of the Commission of Organization. Ten chairs and five outfits will be put at their disposition, and each session can consist of two clinics and two lectures.

2. Each General Assembly shall be occupied by a maximum of two reports, or by one communication and one report. Sections 1 to 8 will have to divide five general assemblies equal to ten reports or communications. As soon as the reports for each Section are chosen, the partition will be fixed by a commission formed from the Commission of Organization and the Presidents and Secretaries of each Section.

3. The program for each day of private assemblies of the Sections will be fixed by the Bureau of each Section in accord with the Commission of Organization (B).

4. The halls of the Congress will be placed at the disposition of the different Committees, for the evenings of Friday and Monday the 10th and 13th, for such meetings as they may choose to organize.

5. The banquet is organized by the General Committee of Reception and Festivals, in accord with the Commission of Organization.

ODONTOGRAPHIC SOCIETY OF CHICAGO.

A regular meeting was held in the Stewart Building, October 16, 1899, with the President, Dr. H. J. Goslee, in the chair.

Dr. F. N. Brown read a paper entitled "Ideas in Crown and Bridge Work." Dr. E. J. Perry followed with a paper entitled "Some Rambling Thoughts on Prosthesis." These two papers were discussed jointly.

Discussion was opened by Dr. L. K. STEWART, who said: I have no doubt you have all enjoyed and been benefited by Dr. Perry's paper. There has been no opportunity for me to become familiar with its contents before it was read this evening, and as he has chosen a different line of thought than I had expected, my anticipated remarks are out of order. Dr. Perry has given us a splendid paper and brought before us the artistic side of prosthetic dentistry. Our early training is so often deficient in this respect, and as a result, we do not become impressed with the wonderful possibilities in each case. Often this department is neglected in college work, partly because of the clinic, and partly because the professor in charge has not had a sufficient number of practical men to assist him. Consequently, as young practitioners, we are apt to not develop along the artistic line of this work. The new graduate feels his lack of ability to properly handle anything beyond a vulcanite plate, and as he is anxious to satisfy his patient, his practice grows in this class of work exclusively. If a case demanding a metal base presents, he realizes his weakness, takes the impression, and sends it to a dental laboratory for completion. The dental laboratories are a great hindrance to the advancement of our profession. If a dentist cannot follow each case of plate work minutely, doing most of it himself, he ought to send the patient to some one who can. It is impossible to get good results unless one person constructs the plate.

While crown and bridge work has settled to a positive position in restoring lost teeth, there always will be a need for good prosthetic dentists, and this specialty will grow in importance.

Dr. Perry's line of thought is a beautiful one, and I know such teaching can but instil a higher aim in all present. To a good adaptation, a proper articulation, let us add an artistic appearance, and this can only be done by following the high ideals suggested by the essayist.

Dr. E. J. Perry: It is unfair to Dr. Brown, it is unfair to me, to be asked to open this discussion, but as the powers that be have authorized it, I suppose it will have to be done. To begin with, how can one open a discussion on a paper which deals simply with the invention of a tooth? There were no particular principles discussed in the paper which may be debated. Worst of all, it is a new kind of tooth. However much it may be recommended to us, we cannot go out and get one. And so it is like single tax, it is not before the country. (Laughter.) Some few things may be said about it. When a patient bites on there, at the end of the tooth, it will break off. This is not fair to Dr. Brown, because he has printed a poor picture of the tooth. In here (illustrating) is an interesting place in this tooth. It is exaggerated, but Dr. Brown is the inventor and has drawn it himself. He is going to hook the tooth over there (illustrating). How in the name of common humanity is a man to get his solder up in there? And after he has got it there, when the patient bites at this point, it won't do a thing but break it off. I am discussing the illustration. I will say further that Dr. Brown has displayed a great deal of ingenuity in the invention of this tooth; he has spent a great deal of time in getting up these models which he has been kind enough to exhibit to us. The tooth which he has exhibited is much better than his drawings, but whether this can be a practical thing or not, it is not easy to determine. Of course, the manufacturers would have to take the matter up.

There is one point which the doctor made, and which I like very much, because I am not much of an artist. He is trying to get hold of something whereby he avoids carving up these cusps (illustrating)in Close's body, but I fear he will never be able to do it. He will have to make these cusps to fill the requirements of each individual case, however desirable it might be to have these cusps all baked in one by the tooth manufacturer.

Personally, I wish to thank Dr. Brown for the pains he has taken in presenting this matter to the society; the society is under obligations to him for the amount of work he has done.

Dr. L. O. Green: While I believe the special tooth of Dr. Brown to be all that is desired in porcelain work, where we have a saddle and a reasonably long bite and can build in a large, bulky mass of body, but in a gold bridge, it seems to me, he is strengthening his porcelain at the expense of his gold solder attachments, and I do not think that it will stand very long. It would break at the solder connections. However, it seems to me one of the most practical teeth for porcelain that I have ever seen, either in porcelain crowns or bridges, or in continuous gum work. I like it, and shall give it a thorough trial.

Dr. John E. Nyman: I quite agree with Dr. Stewart regarding dental laboratories. Those which are a fenced-off quarter section of the operating room usually look more like an enlarged waste paper basket than anything else, and it is no wonder that a mediocre class of work emanates from such a place. The dentist only goes into it, as a rule, when he must of necessity, and emerges from it as speedily as possible. These laboratories are usually covered with dust from ceiling to floor, with a surplus in the corners, and scattered about on the benches and shelves are hideous models of plaster teeth, and I can easily imagine one who is forced to spend an hour or so at the close of a hard day in such a laboratory taking to drink, if he is a drinking man. At the time

I remodeled my offices the question arose as to whether it would be best to fence off a quarter section for a laboratory or not. I finally made up my mind not to do so, and had a special roll-top desk constructed which I knew I would have to keep clean. So, instead of having two small, stuffy rooms, which were difficult to ventilate, I have one large room in which it is almost a pleasure to operate. I find that by arranging things systematically I can keep everything necessary for my prosthetic work just as conveniently in that desk as I could if I had a laboratory. I have also forced myself to acquire the art of mixing plaster and running up models without bespattering everything in an area of six feet square. Of all laboratories I have seen I think that of Dr. Taggart in this city is the finest. It must be a pleasure to work amid surroundings such as are found there. I can imagine one devoting himself to the utmost over the most artistic points of a case without feeling in the least fatigued or bored. This can hardly be said in truth of the average laboratory.

Probably almost every busy practitioner is forced to turn more or less of his prosthetic work over to another. I find that I am obliged to do so, but the man to whom I send this work is instructed to let me see it at each different stage, so that I am able to hold him strictly to the work as it should be done. I never rush a case; it would make no difference if a man were to offer me a hundred dollars for a piece of bridge work that was to be done in one day; if it were a case which required two days' work to secure the best possible results, I would much prefer to let some other dentist make a botch of it, as is usually the result of this rushed work.

I quite agree with Dr. Perry in regard to broad saddles. My views in regard to them have been given so often that I will not repeat them now. I use them as much for a sanitary purpose as I do a matter of strength. A saddle bridge properly constructed is a far cleaner denture in the mouth than anything else.

With reference to suspension bridges, frequently a second bicuspid can be swung to a first molar crown; if a disto-occlusal filling is inserted in the first bicuspid, a groove cut in the grinding surface of the filling and an iridio-platinum bar carried across from the molar and allowed to rest in the groove, there is every reason to believe that it will be a permanent success, as the bar resting upon the first bicuspid will sustain enough of the lateral or vertical stress as to entirely do away with the danger of loosening the the molar root.

I do not fancy seamless crowns. Mellotte's metal dies and models are not as accurate as some would have us believe. I tried this method frequently and carefully, and three-quarters of the models have had flaws in them at some important point. Another objection is the fact that if you swage a seamless crown from a piece of 30 gauge gold plate it will not be more than 32 or 33 gauge thickness when you have completed it, and it would be altogether too weak a crown for practical use. It is almost impossible to fill the cusps of these crowns with anything higher than 16 carat solder, as the attempted use of the others will result in the destruction of the cusp almost every time. Besides, a gold crown with a solid cusp may be made just as speedily by the old accepted method which will not have this objectionable feature. A 29 gauge gold band can be fitted just as easily as a 30 gauge copper band can, and, as a rule, the remainder of the crown can be completed as quickly as the Mellotte metal molds can be made into which the seamless crown is swaged.

In regard to abutments for bridges I quite agree with Dr. Perry. In the Dental Review, for September, 1898, there is an article by me in regard to porcelain work in general, in which I have stated that in all bridge work there should be half as many abutments as the total number of teeth in the bridge. Of course, this is a general rule to which exceptions may be made in certain cases. In the majority of cases if you cannot get that number of abutments, you had better not attempt the bridge. If you should it would probably remain for a while, but would be a failure in the course of five or six years.

In regard to the paper of Dr. Brown I would say that I admire ingenious men, and I admire his ingenuity; but if this world were constructed and run on the ingenious plan alone, it would be a sorry mess most of the time. We have got to combine utility with ingenuity, or it will not be practicable. Like Dr. Perry, I can see no good reason for this crown. A porcelain crown is far stronger, easier to construct, and more artistic when completed, and can be used wherever this one can. In selecting teeth for dentures of any kind several points must be considered. We must have the approximate size, the proper shape and color, and if, in addition to these, you add proper articulation you will increase tremendously the difficulty of finding a tooth to meet the requirements.

I would also remark that it seems to me that the metal span in a bridge constructed after this method is far too weak, and will surely give way, and the sample which he has exhibited on which he intends to bake porcelain body will surely be warped out of shape if a cross-beam is not put in. The tooth is also a very difficult one to accurately back up, and I should be very much afraid that there would be fractures between the pins owing to the contraction of the solder.

To sum up, I would say that porcelain crowns can be used wherever these crowns can be inserted, and are, I believe, stronger and more artistic.

Dr. B. J. CIGRAND: I wish to say a word or two in reference to Dr. Brown's paper, and incidentally on Dr. Perry's. In the first place, Dr. Brown some years since devised a method whereby we could make bridges so that when they were inserted in the mouth they would approach nature in appearance. As it has been in the past, the bridges that were constructed of gold and intended to be durable must necessarily have the tooth tipped with gold, and this was unsightly and made considerable work for the dentist. I believe that I am correct when I say that both Dr. Perry and Dr. Nyman have misunderstood the drawings of Dr. Brown, yet I agree with them in saying that the doctor was hardly explicit enough when he outlined the drawings. I have seen the work of Dr. Brown in this connection and have been familiar with it for about three years, and if it were properly understood, and we could see clearly how he does this line of work, we would agree with him that it is a step in the right direction. He attempts to reproduce, as nearly as possible, the Logan crown, for it is, as we all must admit, the only purchasable crown that reproduces nature. He has attempted to reproduce the Logan crown, and to make this possible he has inserted solid porcelain teeth in between the pillars of the bridge, instead of mere facings. I believe I am correct when I make the remark that the drawing is not clear, in the manner in which he has outlined it. As near as I understand it, he has made the drawings rather large and does not portray that they are solid porcelain. Dr. Perry and Dr. Nyman have argued from this standpoint, and they must have seen it in that way. But if we will remember, Dr. Brown says he grinds out the pins of these purchased teeth, or cuts them out as nearly as he can; then he proceeds to bake this undercut with porcelain. Now we no longer have a shoulder if that is baked in, but we have that sort of a tooth (illustrating). In other words, he has given bulk to this purchased tooth, and we know from experience that *porcelain is only strong when it is in bulk.* When the tooth is solid, there is a small pin coming here and two here (illustrating). Then he lays over this newly baked portion a thin sheet of platinum; he tips these pins and holds the platinum in position. He has not a frail shoulder pointing out here (referring to diagram), but he has a solid porcelain tooth. Instead of a frail tooth presenting overhanging cusps, as described by Drs. Perry and Nyman, he has quite to the contrary, a *solid porcelain tooth*, and this, of course, can be used in connection with bridge work, as Dr. Brown has given it. I think the idea is a good one; and that we need a tooth in bridge work that does not present that most hideous gold cap that we usually see, all will agree. Any invention that stimulates thought in this direction, if it does nothing more, is certainly a step in the direction sought. We must keep to the point where we can absolutely reproduce nature. We are not reproducing nature as bridges are made nowadays with gold cusps.—One other thing: I believe this tooth is especially strong, and it will do away with so much repair work. We know that when we set a bridge for a patient which costs $75 or $100, and he has worn it for several months and then comes back with the facing fractured off, it is a miserable thing to repair. This tooth of Dr. Brown's will prevent our repair work. In the first place, it reproduces nature, and, in the second place, avoids repairs.

Dr. Nyman made the remark that the artificial teeth as now constructed have to be changed. That is true, and it is equally true of Logan crowns. There is hardly a Logan crown I would set without cutting it on the labial surface, more or less, before I put it in the mouth; I mean by this that I would cut it down and make it look like the tooth I want it to match. We invariably buy Logan crowns several shades too light, and if they were properly matched, we would get better results. Logan crowns and artificial teeth have too much glistening in them. I do not remember the German dentist who recommends it, but he subjects his artificial teeth crowns to hydrofluoric acid, which takes the bright luster from them, and makes them appear more lifelike. I wish to encourage Dr. Brown, or any dentist who will invent a tooth that we can use in connection with bridge work that will be free from the display of gold. Dr. Brown has given us a good idea. It is certainly no argument against the work to say "these teeth are not in the market." If they are good it remains for us to put them there. If it is a tooth that we can use in a scientific way, a demand should be created for it. The dental depots will make these teeth if we create a demand for them; if we do not create a demand for them, they will not make them. If this tooth is ideal we should advocate its use and make a demand for it. The dental manufacturers are glad to serve us in this capacity.

With reference to the paper of Dr. Perry, it is an excellent contribution. I enjoyed it very much, particularly when he spoke of the "*Prosthetic Studio.*" It seemed a rather strange combination of words, but that was the proper one, just the same. I think the time is coming when we shall see prosthetic studios; if there is one room in the dental office that should be cheerful, it ought to be the laboratory. It is here that we put in much hard work. I have striven to have a pleasant laboratory and have in a measure realized my ideal.

Dr. John E. Nyman: I wish to apologize to Dr. Brown for some of the criticisms I have made. They were unjust. I gladly acknowledge that my criticisms were due to a misinterpretation of the drawings that were passed around. These drawings would lead us to believe that the gold solder is flowed into the triangular grooves, but this is not the case, and therefore much of the criticism I have made has been eliminated.

Dr. J. E. Hinkins: I have been surprised at some things ever since bridges have been introduced. I am not an artist, but I used to be a bridge builder, and we built bridges according to mathematics. I will try to explain what I have in mind with the aid of sketches on the blackboard. If the principle of a bridge is to support, bridges should be put in the mouth on the same principle. Let this diagram represent the cervical margin, and in how many bridges do you see the contact of the solder like this (pointing to illustration)? Here you will notice the contact point on the crown of the tooth, and here again the occlusal surface which comes across in this manner. Now, did you ever see a bridge with its camber, as it is called, reversed ? Never in your life. The abutment is solid. This is the shape of the bridge (illustrating). If you will examine a railroad bridge carefully, you will see that it has an elevation in the center all the way through. If you, when you solder a bridge, make the contact come at the base of the gold, it comes down onto the cervical margin on each side, so that you get pressure on the base of the crown at the cervical margin instead of the crown of the tooth. As the majority of bridges are made, you can see how much stronger it is. It is more than one-quarter the way up the crown, because this point (illustrating) acts as a fulcrum, and then as a support. In making a bridge I try to have one-quarter of the lower cervical part on my own crown supported at this point (referring to diagram), then run iridio-platinum wire across in this manner, and allow the solder to be narrower here than at this point (illustrating).

Dr. W. V-B. AMES: I have looked carefully at the tooth presented by Dr. Brown, and it seems to me that an important point has been overlooked so far in the discussion. In building crowns on the Richmond plan and various modifications we need to give considerable attention to the contour of the surface upon which the backing is formed. If this surface presents too great a convexity or if there are too abrupt angles, the contraction of the solder melted upon the backing can be relied upon to play havoc with the porcelain about the pins, if the facing is not forced off entirely. The tooth presented by Dr. Brown seems to me to present too much of a convexity at the back.

If you will dissolve the gold backings from old crowns which come into your hands you will find almost invariably the porcelain more or less slivered about the pins. The reason why more of the facings do not come off is because they are so thoroughly protected from strain by the form of backing. In the tooth presented there would not be this protection, since Dr. Brown's main object, as I understand it, is to do away with the objectionable metal on the masticating surface.

I cannot let Dr. Perry's paper pass without saying something about saddles. When he condemns saddles *per se*, I want to ask him what he is going to do for the multitude of patients who have lost all their posterior teeth, and have nothing back of the cuspid above or below. How many patients come to us with the six anterior teeth either above or below, or both? It seems to me that some kind of appliance must be constructed for those cases. We know that lower partial plates are an abomination as ordinarily made. Anything which does not have telescoping crowns to make practically a removable bridge, or something which is not fixed, is an abomination. But what are we going to do with these patients? In my practice it is the only way in which I can help them out with satisfaction to them. I saw a patient this morning who has nothing back of the cuspid on either side of the lower jaw, who wears saddles half an inch wide in their bearing. The teeth had been out for years, and the jaw had thoroughly settled.

While we find effete epithelium and mucous under these saddles, when you take them away, there is nothing very objectionable. I fail to see where the objection is to that amount of uncleanliness, and that is all there is. Where the attachments have been faulty you have all sorts of bad and objectionable conditions; but the epithelium and mucous which collect under saddles properly adjusted are not objectionable and ought not to be argued against.

Dr. Brown (closing the discussion): Dr. Perry in his discussion stated as the tooth could not be procured there was no argument to be made in its favor.

I stated explicitly in my paper that this tooth is not in the market and that it is of no account to the dentist unless it was manufactured. First of all, it was the principle I brought before you for consideration and not so much the tooth. It may possibly remain for some dentist to carry the idea forward, if I am incorrect, and rid us of the metallic surfaces or cusps in crown and bridge work. This tooth properly backed and soldered up, which is an easy thing to do, will resist the force of mastication as successfully as a Logan crown, of which it is a pattern, as regards bulk of porcelain and contour. It is not putting it too strong to say this tooth properly manufactured in one solid piece of porcelain cannot be broken by the forces of mastication.

I had hoped to carry on my experiments and have Dr. Black give me the test strength of the tooth, but was urged to present this paper one month earlier than I had planned for.

I do not appear before you with a subject of which I know nothing, as my experiments with this tooth covers a period of three years, and I feel convinced that the principle of the three-pin tooth is the correct one; and I ask you to take these ideas home with you, for we all wish to do away with the appearance of gold in crown and bridge work, and this certainly does so most effectually.

It is by great effort that this work has been presented to you this evening, but the principle is there and we will ultimately come to the three-pin tooth. After the tooth is backed and soldered up, as I have explained, it sets in a metallic cup from which it cannot be detached unless by considerable or unnecessary force.

Some have the idea that the tooth is to be made by the individual dentist. This is incorrect, and unless it is manufactured, and plenty of them, the tooth can be of no earthly use to the profession. Do not imagine for a moment that I advocate the idea of changing a rubber tooth, and by adding porcelain produce a satisfactory three-pin tooth of the contour of the Logan, for this is only accomplished by expert workmen and is not practical for the average dentist.

Finally, I desire to express my gratitude to you for the interest you have displayed in the principle I have brought before you, which I claim to be a new idea, a three-pin tooth constructed in the manner described, doing away with the appearance or need of gold cusps in crown or bridge work, and at the same time simplifying the construction of this character of work as well as that of porcelain.

A regular meeting was held in the Stewart Building, November 20, 1899, with the President, Dr. H. J. Goslee, in the chair.

Dr. F. L. Smith read a paper entitled "Rotating Teeth—Principles and Appliances."

The discussion was opened by Dr. H. J. GOSLEE, who said: It is a difficult matter to discuss a paper that is based upon facts and illustrated in the practical manner that Dr. Smith's essay was. I want to commend the paper in its practical illustration. There are a few phases I wish to refer to, among them being the best means of rotating teeth, and it is that which I would like to speak of in particular. A thought came to my mind a short time before the reading of the paper, with reference to rotating teeth, and it is this: When we find a tooth which requires rotating, it is most often a tooth which is inlocked, and it becomes necessary for us, first, to secure accommodation in the arch for that tooth. Now, with this means of rotation it would be impossible for us to turn the tooth around on its axis because we must first by some means secure sufficient accommodation for it. Dr. Smith will agree with me in that regard, and he neglected to put it in the paper for some reason of his own. In a case of that kind it would be necessary to use some other style of appliance to spread the teeth approximating the twisted tooth first, or to gain space in the usual manner by wedging. I can conceive of a different kind of appliance which would accomplish both at the same time, but I do believe that this method of rotating (which we know is that of Dr. Case's) is the most practical and easily adapted means that I know of, and the simplest. This entire appliance can be constructed in a half hour's time with ease.

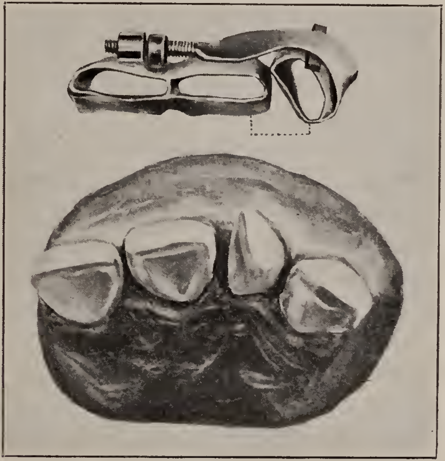
He also referred to the placing of lingual supports against the approximating tooth on the anchorage band, which I regard as almost an absolute necessity; because the stiffness of the wire, which is placed in this appliance for two purposes, is sufficiently great itself, when drawn up to taut tension, to force the molar tooth out of position. If only one tooth is included, by running a spur mesially and distally against the approximating teeth, we can overcome that tendency very nicely; and I do not think it favorable to put an alignment wire in without this protection against the outward movement, due to the force which is stored up within the wire. He illustrates beautifully the necessity for a practical comprehension of the application of force in overcoming irregularities of the teeth. I do not believe it is possible for one to construct a regulating appliance, which is nothing more nor less than a machine, and adapt it properly, unless he knows something about the laws of force, about levers, the reciprocation of force, and the difference between potential and kinetic power. I agree with him with reference to the construction of appliances for the regulation of teeth by the operator himself. I do not think it is possible for any one to regulate teeth successfully unless he makes certain parts of the appliance himself. The dentist should know how the bands are to be made, and in cases where we have to rotate teeth especially, because if he attempts to adjust ready-made bands, it is difficult, and he is entirely dependent upon the cement with which he retains the bands in place to sustain their relation to the teeth; and there is very little use in trying to rotate a tooth unless the band fits it correctly, because it will likely break away from its attachment and twist around itself on the tooth. The bands must be carefully fitted in each case.

When it comes to the preparation of various other materials, such as wires and tubing, we can buy them already prepared, and they will answer our purpose. But the construction of the appliance itself, and the putting together of the various parts, should always and invariably be done by the operator himself if he hopes to meet with success. The particular reason why this method of rotating teeth is successful is because of the elasticity, the characteristic of the metal itself, which is in the wire, together with the fact that each end of the wire is free so that it can act upon itself; and thus the power stored up in the metal will have no interference at all in straightening it out, and the tooth is easily and simply twisted around with it, due to the potential force stored up in the wire; which to my mind is a great deal better and far easier method, where it can be applied, where there is accommodation for the tooth in the arch, than any other means I know of, including rubber bands, silk ligatures, and reciprocating jackscrews.

I think the society is to be congratulated on receiving such a practical paper, especially from one of our younger men, and I wish more of the young men would fall in line and aid us by writing and presenting such papers as Dr. Smith has read to-night.

Dr. J. H. PROTHERO was asked to take part in the discussion. He said: I have not very much to say, because I do not devote as much time to this class of work as many others, and consequently I do not feel at liberty to enter into the discussion very deeply. Like Dr. Smith, most of the instruction I received along this line was from Dr. Case. I was fortunate enough, a number of years ago, to be under his instruction for a while, and I acquired many of my ideas from him, and I found at the time that Dr. Case's success was largely due to a study of the laws of force, as has been shown to-night in the paper that has been presented. I feel like complimenting the writer on the manner in which it was so clearly and lucidly given. The question of construction of appliances for each individual case no one will doubt. We can buy certain parts of our appliances, but when it comes to adapting them to individual cases, it becomes necessary to make some slight modification for each case, and it is necessary that the case be studied carefully and all of the individual peculiarities considered and the appliances constructed for it that will meet all the requirements.

Dr. E. M. S. Fernandez: Fit a band to each of the central incisors and unite the bands with solder. On the labial surface of these bands solder a ring as illustrated in the diagram. To the crooked lateral fit a band of gold and platinum and upon the disto-lingual curvature of this band solder a strip of similar metal to lap around over the labial surface of the lateral and terminate in a screw to pass through the ring on the central bands with a nut fitted to the extremity of the screw. On the lingual aspect of the appliance in the region of the dotted lines solder to one piece or the other as the case indicates a crimpled or fluted strip of gold, and upon the other piece a little spur against which the loose end of the fluted strip may rest. Before cementing the appliance upon the teeth pack cotton between the lateral and cuspid, and the lateral and central, to make sufficient space for a ready adjustment of the appliance and a ready turning of the lateral. When the appliance is in place tighten the nut till the strip over the lateral is reasonably snug and then slip a piece of rubber between the strip and band over the mesio-labial angle of the lateral, as indicated in the cut.



Change the rubber from time to time and take up the slack in the strip by turning the nut. To prevent the nut from loosening flow a little cement over the end of the screw. To force the disto-lingual angle of the tooth back grasp the fluted piece with flat-nosed pliers and pinch it till it impinges against the spur. This may be repeated at intervals as the case requires. By this means the most stubborn tooth may be driven to position and securely held there till it becomes firm. The force is definite and direct and any degree of pressure can be exerted that the case in hand may seem to demand. In cases where much resistance is expected three teeth should be united by bands instead of two.

Dr. Frederick B. Noyes: The author of the paper has spoken of the resistance against which the forces used in the rotation of teeth are exerted, and has likened the fibers of the peridental membrane to the tiller ropes, the tooth to the axle of the pilot wheel and the lugs on the bands where the force is exerted to the handles at the circumference of the wheel. The figure is a good one, and true enough, but the hold of the fibers of the peridental membrane on the root of the tooth is much more complete and secure than that of the tiller ropes on the axle of the pilot wheel. When force is exerted on the handles of the pilot wheel one rope is put on tension, the other is slackened. It would represent the conditions of the tooth more accurately if there were two ropes wound around the axle in opposite directions, so that two were put on tension and two slackened. In the rotation of a tooth the fibers of the peridental membrane on diagonally opposite quadrants of the root circumference are put upon the stretch; those attached to the other two quadrants of the circumference are made slack. The attachments of none of them are cut off. This will be better understood if we examine the direction of the fibers of the membrane as shown in transverse section of the root in the gingival third of the alveolar portion. At the center of the labial surface of the root the fibers pass directly out from the surface of the cementum to the bone of the alveolar wall, but following around the circumference of the root we find that the fibers do not continue to radiate from the surface of the cementum, following the shortest course to the wall of the alveolus, but that in the disto-buccal quadrant they curve around distally, while on the mesio-buccal quadrant they curve around mesially. At the corners of the root the fibers are arranged in specially strong bands which pass out almost at a tangent to the surface of the root and support the tooth against rotation. If the tooth is to be turned mesially the bands of fibers at the disto-buccal and mesio-lingual corners would be stretched; those at the mesio-buccal and disto-lingual would be slackened; none of the fibers would be cut off by absorption either of the bone of the alveolus or the cementum of the tooth, as occurs in direct movements of the tooth. The fibers of the peridental membrane are of white fibrous tissue and not elastic tissue, and changes in this tissue by replacement take place very slowly. Not only are half of the fibers exerting an extra pull, but the other half are not exerting their normal pull, so that the entire membrane must be reconstructed before the tooth becomes firm in its acquired position. This gives us an explanation of the fact that rotated teeth must be held longer than after any other class of movement.

Dr. Angle in the last issue of the *Cosmos* has referred to this arrangement of the fibers and advised the surgical cutting of them; but for retention it is as necessary to shorten the slack fibers as to lengthen the stretched ones, and there seems to be practical difficulties.

Dr. John E. Nyman: While Dr. Smith was speaking about the alveolar process rotating in a mass with the tooth, I wondered what happened to that section of it which was attached to the jawbone itself, and what happened to the fibers of the pericementum of the apical third of the root that are almost directly attached to the jawbone. If there is any rotation of the osseous tissue, it must get a most peculiar spiral twist on it. It seems to me, however, that the change takes place entirely in the peridental membrane, as Dr. Noyes has illustrated. There may be some slight distention of the alveolar process owing to the pressure of some prominence of the root as it is rotated, but it seems to me that to state that the alveolar process is rotated with the tooth is stretching a theory a little farther than is warranted.

In connection with the bands and the material of which they are made, I would like to state that to me German silver in the mouth is an abomination, and about the dirtiest thing that one may use, excepting, perhaps, brass or copper. For some time past I have made my bands of platinum wire, 22 gauge, rolled down to 36. It is a material strong enough to resist any force that is brought to bear upon it, and is not affected by any of the fluids of the mouth. It is a metal that is clean at all times, and can be soldered with high carat solder with perfect impunity. The objection of expense in using this material for bands is met by the fact that it is easy to separate them from the appliance after you are through with it and sell them to any of the metallurgists at very slight discount.

There is a point in connection with bands that I desire to speak about. Many times when using closed bands I have not been able to get my appliance into place owing to the fact that the teeth which we used for anchorage stood at diverse angles. It is a distinct advantage to use the open band, which may be closed by means of a bolt after Dr. Angle's method, or using those suggested by Dr. Knapp, which are closed by winding a thin wire around the two little lugs that are soldered to the ends of the band. If one desires, the inside of the band may be coated with cement at the time they are attached, thereby holding them still more securely in place.

A MEMBER: I would like to ask Dr. Nyman what gauge wire and of what material he uses to secure the bands on the teeth that he speaks of.

DR. NYMAN: I use about 28 gauge platinum wire, which is wound back and forth around the lugs.

While I am on my feet there is one other point that I wish to speak of in connection with the correction of irregularities, and that is the necessity for observing and carefully considering the peculiarities of articulation. I once had a young lady consult me in regard to a tooth which had been rotated several times, but regardless of the length of time that it was retained in place, it would invariably assume its old irregular position within six months after the retaining appliance was removed. It was evident at a glance that the lower lateral and the mesial corner of the lower cuspid were in such position as to continually exert upon the upper lateral a force which resulted in the irregularity. The articulation having been corrected, the tooth was rotated once more, and after retention for the usual length of time the appliances were removed. After a period of three years the tooth remains in the correct position in the arch.

I cordially agree with Dr. Angle that the articulation or occlusion, as you may choose to call it, is the keynote of the whole matter. There must be a normal articulation after the correction of irregularities, or there will surely be trouble again in the course of time.

Dr. SMITH (closing the discussion): Dr. Goslee spoke of securing space where the teeth are interlocked or crowded. This of course is a matter of enlarging the arch before the teeth are rotated. Or an appliance may be used that will do both at the same time (for example, the jack and traction screw, Figs. 4 and 6). If the lapping is only slight, however, as in Fig. 1, the tooth will make room for itself in turning.

In regard to the use of the alignment wire, of course if it is put on without first conforming it to the arch, it will have a much greater tendency to spread the molars. The spring should all be taken away by shaping it in the form of a bow before it is put in place.

With reference to the appliance of Dr. Fernandez, of course we all have our own ideas about these things, and our own preferences. I think, however, it would have more of a tendency to draw the teeth together than it would to rotate them. I have no objection whatever to what has been said by Dr. Noyes. In answer to what Dr. Nyman has said, I did not mean to convey the idea that the alveolar process is moved unchanged like a board would be, but that it is acted upon in much the same way as the rudder is, the change in the process being that of absorption, due to the pressure that is brought to bear upon it, and later a resorption in another place. Of course the peridental membrane is stretched more or less, and in cases where the teeth have been but slightly rotated there is probably very little, if any, change in the process; but if the tooth has been turned one-fourth of the way around it is hardly reasonable to suppose that there is no change in the alveolar process.

In regard to banding material, of course, everything else being equal, there is no reason why the use of gold or platinum in the mouth would not be preferable to German silver as far as appearance is concerned. But the most desirable features of a regulating band are thinness and strength, also something that will not injure the tooth. And I know of no other metal that will serve all these purposes as well as German silver. Most of my bands are from three to four-thousandths of an inch in thickness, which is about the thickness of ordinary writing paper. Dr. Nyman says the material he uses is 34 gauge or six-thousandths, rolled from No. 22 wire. My objection to this is that the bands would be too narrow, and thicker than necessary for ordinary purposes. If they were made broader and thinner they would be just as strong and would have a better grasp on the tooth. The material used by Dr. Fernandez was 32 gauge or eight-thousandths. This would necessitate a great deal of unnecessary separation, and in cases where several teeth are banded it would be difficult to use such thick bands for all the teeth. Of course the anchorage bands should be six or eight-thousandths of an inch in thickness.

With reference to the use of platinum, about three years ago Dr. Case began to use gold platinum for retaining appliances, the platinum side being placed next to the tooth; but after two years, experience with it he changed back to German silver, except for the cuspid bands which extend clear around the tooth. He changed for two reasons. In the first place, he found that on account of the thinness of the bands the gold platina was not strong enough. The pieces of metal or lugs between the teeth would often break off, and cause a great deal of trouble. In the second place, he found that in several instances, where the cement had dissolved out from under the band, there was a disintegration of the enamel. And as it did not occur with German silver, he attributed it to the use of the platinum. This may seem almost incredible to those who have had no experience with it. I could hardly believe it myself until I saw it in one of my own cases. I have never found this condition following the use of German silver.

While it is true that German silver discolors the teeth it does not injure them, and the discoloration can easily be cleaned off.

Dr. Goslee: In the dissolving out of the cement underneath the band in the tooth you speak of, a pocket might have been left by the band between it and the tooth into which accumulations gathered, and out of which they could not pass, consequently disintegration of the tooth may have resulted from material there which could not be washed out. Do you not think that is feasible?

Dr. Smith: Yes, it is; I do not know why platinum should have any more effect upon the teeth than German silver.

Dr. Nyman: The only reason is that there might be formed a sulphate of copper, and one or two other sulphates or chlorides with the oxides, which would have a restraining influence on any bacteria that may be present.

Dr. SMITH: Dr. Nyman spoke of a case where the teeth had been rotated several times, and had gone back on account of the occlusion of the lower teeth. That is an important point to be considered. There is no use of regulating the upper teeth unless we regulate the lower also. If the lower teeth are irregular and occlude in such a way as to throw the upper teeth back they will do it every time.

Some one spoke of the teeth going back after the retaining appliance had been worn three or four months. They certainly would, for if it is necessary to wear a retaining appliance at all, it should be worn one or two years.

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It is not caustic or corrosive.
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THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

THE ILLINOIS MEETING.

The time will soon be here when the next meeting of the State Dental Society will be held in Springfield. The program will be good and the clinics will be numerous and profitable. Visitors are always welcome, especially from other States and countries.

THE OFFICIAL DELEGATES TO THE INTERNATIONAL DENTAL CONGRESS.

Some time since a request was forwarded to the editor to name five or more persons to be nominated to represent this country officially at the International Dental Congress to be held in Paris, August 8 to 14, 1900. The names were forwarded to the U. S. Commission, and under date of March 12 the names of those who were selected were forwarded to me as follows: Truman W. Brophy, M. D., D. D. S., LL. D., Chicago, Ill ; W. W. Walker, M. D. S., D. D. S., New York, N. Y.; Gordon White, A. M., D. D. S., Nashville, Tenn. This will be the first time in the history of dental congresses that official delegates have been appointed to represent the United States, and we congratulate the profession upon this official recognition.

THE NATIONAL DENTAL ASSOCIATION.

If you are interested in the next meeting be sure and vote for July 10 as the date, because that is early enough for any one to go to Europe. If the meeting is held June 26 it will not be half a meeting; and we want it a success because it will be the first meeting held in the South, since the consolidation, and for other reasons as witness the following:

"I can foresee the outcome of the meeting at Old Point Comfort by merely closing my eyes. This is, provided they propose to carry out the plan that they followed last year. I am perfectly willing to step to one side and make room for someone else, for I have little desire to again read an essay this year unless it is absolutely necessary. Dr. ——— assured me that there were too few western men at present on his list. Of a certainty, I will put my shoulder to the wheel and do all in my power to assist any dental meeting at any time, but I have little desire to again be in that vortex of chaos that was so characteristic at Niagara Falls last August.

"I wrote Dr. Smith, of Baltimore, and asked if he would not communicate with you and ascertain your ideas in regard to a change of date for the National. Those who are going to Paris can thus make their arrangements to go to both places. I am thinking particularly of the western men. I think there are few of us who care to double back for a couple of weeks."

In order to have a full meeting be sure and vote for July 10.

INTERNATIONAL DENTAL CONGRESS.

We publish this article for what it is worth and not for purposes of getting into a ruction with any one person or body of men.—[EDITOR.]

TRANSLATION.

INTERNATIONAL DENTAL CONGRESS OF 1900. RELATIVE TO THE THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE (1900).

In several foreign journals we have noted that several writers convey the impression that dentists will be admitted to the section of stomatology in the medical congress, where they will be, in a measure, tolerated.

Such an impression is not exact; in fact, the rules of the Thirteenth International Congress of Medicine, Art. 2, reads as follows:

"Art. 2. Eligible to membership:

"1. Doctors of medicine who apply.

"2. Scientists introduced by the French executive committee or by foreign national committees."

Admitting that under paragraph 2 certain eminent men could be introduced, it would still remain that the large majority of dentists would not come under the term scientists, for dentists are essentially practitioners. If it were otherwise, the rule would not be observed, which is out of the question.

Besides, we quote from a circular addressed to the members of the medical congress as follows:

"We wish to call your attention to a subject which has been presented to us by several national committees, that of admitting dentists who do not possess a diploma in medicine. We should have been happy to have been able to answer favorably to these requests, but for two reasons we are unable to do so: We believe it necessary that our congress be essentially medical and that it admit only those who have the necessary scientific standing. We fear, also, that the admission of all dentists without distinction would bring us too large a number of members, thus adding to the already great difficulties of organization and holding of the congress. These are the reasons which have led us to decide that only dentists or stomatologists holding the degree of doctor of medicine could be admitted to the congress."

"A. CHAUFFORD,
"*Secretary-General of the Medical Congress.*"

These two extracts show plainly that the doors of the medical congress are closed to dentists unless they be physicians.

DR. E. SAUVEZ,
Secretary-General of the Dental Congress.

DOMESTIC CORRESPONDENCE.

LETTER FROM DR. McCANDLESS ON PORCELAIN.

CHICAGO, February 28, 1900.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—In the January number of the REVIEW appears a well written paper on "The Application of Porcelain to Crown and Bridge Work." In the main I can heartily commend the article, but I wish to sound a note of warning in regard to solders so that others may avoid the pitfalls that I have fallen into. On page 3 will be found the following:

"The advent of platinum solders recently introduced to the profession by Dr. Ames overcomes this annoyance, has many advantages and certainly adds great strength to the work." If the author had said no more on this point I should not deem this warning necessary, but after saying that platinum solder "overcomes this annoyance, has *many advantages* and *certainly adds great strength to the work*," all of which I know by a considerable experience to be absolutely true, he adds: "But it may be interesting to those who have no facilities for fusing platinum solders or for procuring them to know that pure gold can be successfully used to meet every requirement if the precautions of absolute contact of parts, of sustaining their relation by bracing firmly with the beams, and of properly fusing the gold are observed."

After my experience with pure gold as a solder, and using great care that there was absolute contact of the joints to be soldered, this experience extending over a considerable space of time, my advice to "those who have no facilities for fusing platinum solders" is, either possess yourselves of those facilities, which all may do, or else do not attempt porcelain crown and bridge work at all, for if you do "you will be sorry." Pure gold melts at a temperature much below that required to fuse true porcelain, and if a solder which requires a greater heat to fuse it than is necessary for the porcelain is *better* than pure gold, which it is, what excuse is there for using pure gold? I go on the theory that the best is none too good.

Since I began the use of a twenty-five per cent platinum solder, confined myself to the employment of a high-fusing porcelain (Close's), and have used nothing but base plate gutta-percha for anchoring these crowns and bridges, my previous troubles, which come often to annoy and worry me, have all dissolved into thin air. I have taken a new lease of life, and my patients "bless and curse not."

I am as strong an advocate of gutta-percha as of twenty-five per cent platinum solder for various reasons; viz., because the gutta-percha acts as a cushion, and in case of a patient accidentally biting on a piece of shell or solder, which one oftentimes finds in canned goods, or a piece of bone, the jar is not nearly as great. I have caused excruciating pain to some patients by setting crowns or bridges with cement. The gutta-percha produces no pain, and thirdly, if any accident *should* happen to a bridge or crown that should require its removal it is almost as easily done, if set with gutta-percha, as to remove a plate from the mouth. To illustrate: A lower bridge extending from second bicuspid to third molar was causing some annoyance after having been worn some time by too much pressure of the saddle on the gum tissue. I turned a stream of warm water, as hot as the patient could bear without discomfort, upon the bridge. In a few moments' time I was enabled to remove the bridge with no trouble at all, eased the part where the pressure was too great, and reset the bridge. Now, suppose that bridge had been set with cement. I would have had to cut it to pieces to get it off and when I did I would find a large quantity of cement nicely lodged in that saddle.

Only one word more. Get the metal parts of your bridge down and out of the way as much as possible, not like Fig. 8 on page 10, but more like Fig. 10 on page 13, except that the bar should be round and bent down to touch the saddle all along the line, or nearly so, then with twenty-five per cent platinum solder the bar, saddle and pins may be all made into one solid piece of metal, and your solder, even though of quite a bulk, will not disappear when the porcelain is added.

Yours cordially,
A. W. McCANDLESS.

LETTER FROM NEW YORK.

NEW YORK, March 8, 1900.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—In the afternoon of February 13 the First District Dental Society of New York had in progress a general clinic at the rooms of the New York Dental School.

A number of things of interest were shown and demonstrated. The arrangement altogether savored of the "bazaar," and lacked the refinement which should belong to a professional body. Nevertheless, clinics are instructive.

Dr. W. V-B. Ames, of Chicago, Ill., came all the way that he might demonstrate his new process of oxyphosphate of copper and other oxyphosphate cements. One use he shows for the former is the taking of an impression of the occlusal surface of a tooth, or of a cavity for an inlay (which, of course, has no "dovetail"). Then when sufficiently hard, which takes place quite quickly with this material, upon removing, a reverse die is obtained. The obverse is gotten by pressing heated impression compound against the oxyphosphate, after having touched with vaseline.

A neat, small apparatus was shown by Dr. F. W. Low, of Buffalo, N. Y., in the form of a lamp for generating formaldehyde vapor for sterilization purposes. It consisted of a platinum sponge coil suspended over a lamp with wick such as is used for burning regular alcohol, but the doctor uses *wood* alcohol. After lighting the alcohol at the wick and the flame has heated the platinum sponge, the flame is extinguished and a metal shield, perforated at the sides similar to a Bunsen burner, is placed over the heated coil. The fumes of wood alcohol coming in contact with the heated platinum causes the same to keep glowing, and *eliminating by its combustion formaldehyde gas*, which is allowed to diffuse into a metal box having an aperture at the bottom into which the burner attachment projects. In this box are placed the instruments to be sterilized.

Dr. Low says that recently the demand for the lamp in and about Buffalo by physicians who recognize how cheaply and well the thing operates, has been remarkable. These are used in sick rooms.

Dr. Mehlig, of New York, showed a set of instruments (which consists of several sizes of the same shaped instrument) which he designates as a new instrument for trimming cervical margins of approximal cavities in bicuspids and molars and in buccal and lingual cavities, which insures perfect, smooth walls or borders. The principle is excellent, and the trial upon plaster mounted teeth showed their effectiveness, rapidly and smoothly trimming those frail cervical edges of enamel which cause us so much anxiety. There is nothing known to be on the market like them, and one wonders why the instrument has not been devised before. It will undoubtedly prove an invaluable adjunct to any dental cabinet.

Dr. Fosheim, of New York, demonstrated a practical hygienic splint for the retention of loose teeth, which was quite unique. It requires the grinding of the occlusal edges of the teeth to admit of the thickness of the appliance, about a "line," or may be one-twelfth of an inch. Two holes are then drilled in each tooth, either side of the pulp, parallel, of course; pins are then fitted into these, then a continuous piece of soft gold plate is fitted over the entire circuit of teeth to be retained, which in most instances would extend to the bicuspids so as to comprise teeth having some stability. The location of the holes in teeth is then determined, the pins forced through gold plate into them, the whole held together by any desirable means, removed, invested and soldered. When completed it is cemented to place.

Something of a similar character was presented to the profession some years ago. Dr. C. L. Andrews, of New York, claims to be the deviser of that appliance, although presented to the profession with Dr. Rhein's paper on the subject of "Studies of Pyorrhea."

That appliance, I believe, consisted of, first, a groove being cut along edges of all teeth deep enough to retain a heavy wire, the whole to be held in place by filling all about the same and restoring the contour with gold.

The "old school" (Dr Dunning) system, the use of soft foil with "diamond pointed" instruments, was demonstrated by Dr. Wilber M. Dailey, of New York, which was very interesting, and it may be said instructive as well, for there is great virtue in soft gold.

There was also shown by Dr. J. C. Graft, of Newark, N. J., a new method of casting metal dies direct from original impressions and mounting sets of teeth on base plates for temporary use without vulcanizing, which was very instructive.

The value of such clinics as the First District or any society might give cannot be overestimated. There is some objection to the motley arrangement in general, but that is possibly offset by the fund of information men seem to carry away with them. Quite a few of the older and representative men were seen jotting notes of those things which impressed them most and which would possibly assist in some way as a help over a hard place or to make some operation more comfortable for the patient.

There were quite a number of others who cliniqued that day. Amongst the number were Drs. W. C. Deane, A. L. Del Castillo and T. W. Onderdonk, of New York, L. C. Taylor, of Hartford, Conn., W. H. Mitchell, of Bayonne, N. J., and Harvey Iredell, of New Brunswick, N. J.

The construction of gold tips for abraded teeth has been occupying considerable attention at various society gatherings for the past few months, at least about New York.

The First District Society of New York gave up the major part of their last meeting night, February 13, to a demonstration of the same by Dr. Geo. Evans, of New York. Quite considerable discussion was provoked.

His method is (briefly) to smooth rough edges of enamel about abraded surfaces. If decay exists say on approximal face of an incisor extending to abraded surface, to shape that cavity with the occlusal one, two or three holes are drilled into the occlusal end of tooth as far away from pulp and just inside (preferably) of enamel edges, these to be as perfectly parallel as possible, though if they are not they can be drilled more oblique to permit of withdrawing subsequently together the pins that are to fit into these holes. Gold or platina is then used to burnish to the prepared face of tooth. The soft metal will take an imprint of the locality of the holes; an instrument is used to puncture the gold corresponding to the holes in teeth.

One pin at a time is placed through the gold into holes, gently removed and soldered to place with the smallest possible piece of solder. Each pin is soldered to place separately. They are then cut off the desired length that is required to restore the contour or open the bite. These act as a guide, how high to build up the contour, which can be done by layers of clasp gold or with gold solder.

The Clinic Committee of the Odontological Society of New York had as clinicians at their afternoon meeting, February 20, 1900, Dr. R. Ottolengui, who performed the operation in the mouth of a patient, of constructing and setting an inlay, prepared and baked on the Jenkins system in a Kingsley furnace, which is a modification of the Jenkins.

The cavity had been prepared and was ready for the clinic. It involved the posterior approximal face, including almost the entire occlusal surface. Vaseline was used to permit the No. 30 Williams foil being removed readily from cavity. A piece of gold, about an inch square, was used for this matrix, and carried to place by crowding spunk onto it, the finger acting as a retainer. Apparently no metal burnishing is required. Having been shaped to suit, the matrix was "teased" from the cavity and immediately invested in powdered asbestos prepared creamy with water. The Kingsley furnace is much like the Jenkins, except that the blowpipe is a fixture on a wood base, which also carries the furnace or muffle, which is open at its base for the admission of the flame, which is projected upon work from beneath. Considerable care was exercised in drying the moisture from asbestos, also subsequently in fusing the porcelain body into such a large matrix. A small quantity was placed at the extreme base and then fused; a small quantity more, and so on, until the whole was thoroughly supported by porcelain, cautiously laid on. This was done to prevent contraction or distortion of the matrix, which would prevent a proper fit in cavity. The inlay finally completed, and grooved with disks, the rubber dam was applied to tooth, oxyphosphate cement was mixed creamy and the inlay cemented to place. The entire operation consumed about one hour.

Dr. O. A. Krone, an assistant of Dr. J. W. Taylor, had the latter gentleman's C. A. Timme electrical continuous gum and inlay furnaces on hand and demonstrated the amount of heat that could be gotten with same. The principle of these furnaces seems excellent. Dr. Krone described them as consisting of a metallic (cast iron) box *with the opening in front* similar to the ancient furnaces, so that the work can be gradually slid into place.

The four sides are made removable and of a preparation of fine clay and feldspar highly compressed, and about one-half inch thick. The claim is that this preparation does not flake or crack.

In these fire clay partitions are small holes one-eight inch apart, through which small platina wire is threaded. Each partition is really a furnace in itself.

Should the wires burn out they can be gotten at readily, repaired or replaced quickly and work go on.

The large furnace shown, which was about the size of a Custer electric, requires twelve amperes of current, the smaller one only seven amperes.

The regular meeting of this Society was called to order in the evening, February 20th, at the Academy of Medicine, by the President, Dr. W. W. Walker.

Dr. Norman W. Kingsley, of N. Y. C., was to address the society upon this occasion, which was a guarantee for good attendance. He had chosen for his subject "Has Dental Legislation Cured Quackery?"

He divided dentists into three grades, the purely professional, the tradesmen and the quacks. The empirical class he did not place as quacks.

Legislation in the estimation of the doctor has not cured quackery, but it is rather on the increase. We as dentists should find some way of suppressing the advertising charlatan, but no remedy was offered that might rid us of this stigma.

The closing remarks of the speaker were unexpected but met with hearty applause, which sustained Dr. Kingsley and was more than a compliment to Dr. Wm. Carr, chairman of New York State Dental Society's legislative committee. The remark was: "When this society makes up its roll of honor the name of the chairman of the committee on dental law will stand second to none."

Dr. Jarvie, of Brooklyn, N. Y., also a member of the State legislative committee, was the first to be called on to discuss Dr. Kingsley's paper and had taken quite an unusual course for him, in putting his thoughts on paper. He was quite optimistic in his views on the position of the profession as to whether the legislative work had been of avail, answering yes. Previous to 1895 our laws were somewhat lax but since that date it prevents any man from coming into the State to practice unless he is qualified, which insures to some extent; and it is a fact that the class of work done in quack offices to-day is much better than was done a few years ago. He knows that quackery exists in spite of legislation, but it is not the cause of it. Dr. Jarvie's was an able and dignified answer to Dr. Kingsley.

Dr. Sanger expressed himself as surprised at the remarkably pessimistic view that can be taken by one who otherwise is generally so broad-minded. So long as men live and compete, so long will we have such a condition of affairs as quackery.

Dr. S. G. Perry, of New York, referred to some of Dr. Kingsley's work aside from dentistry which few of us knew about, where the latter read a paper about a quarter of a century ago in the old church on Fourth Avenue which made him famous throughout the world. Other speakers who discussed the subject expressed more or less the pessimistic view. Dr. Meeker said that after our law of '95, New Jersey became the dumping ground for medical and dental quacks,but it did not require many years to frame laws which New Jersey believes to be equal to that of any other State.

The twentieth annual meeting of the Central Dental Association of Northern New Jersey was celebrated with its usual banquet on Monday evening, February 19, at Davis's, Broad Street, Newark, N. J. One hundred and fifty prominent dentists surrounded the banquet table. On but one other occasion of a similar nature has this society had a larger number present. Next year it will be "of age." It is fair to presume there will be a time then that will "out-Herod Herod."

At the head of the table were seated the President of the C. D. A., C. N. Hardy, of Summit, N. J.; W. W. Walker, President of the Odontological Society of New York; F. O. Kraemer, of Brooklyn, President of the Second District Dental Society of New York; E. A. Bogue, President of the New York Institute of Stomatology; Hon. James A. Seymour, Mayor of the goodly city of Newark; Chas. A. Meeker, Treasurer of the Central Dental Association and the president's right-hand man.

The President of the National Dental Association, genial B. Holly Smith, should have been with the "elect," but he preferred to be among "the boys," and so was in the general crowd. The governor of New Jersey, Foster M. Voorhees, was expected but failed to appear, as did also Drs. A. R. Starr and S. G. Perry, of New York, representing the First District Dental Society and the Odontological.

We have expatiated at some length before this on the many good qualities of the "Hornets," and this banquet was up to their usual standard this evening. The annual is always given over to the social feature (except their election of officers) and so, after enjoying the good things provided by mine host Davis, the ball was opened by the usual annual address of the president, followed by B. Holly Smith, who responded to the toast, "Our Country." The couplet which followed his toast was, "I have here only made a nosegay of culled flowers and have brought nothing of my own but the thread that ties them together." Using that as his text, and facetiously remarking that he had probably made his "nose gay" by the evening's associations, he went far afield into various things which were interesting and amusing. When he did finally reach his theme he had two or three selections to read, showing the intense feeling of all parts of the United States for our success as a whole, and representing different persons as from Puerto Rico, U. S. A., Honolulu, U. S. A., Manila, U. S. A., etc., etc., winding up with (as the string to bind the flowers of his nosegay) an earnest appeal for support for the National Association as being *the* representative dental organization of "Our Country." Very cleverly done.

Dr. Charles S. Stockton, one of the veterans of New Jersey, was next, with, as his toast, "The Passing of the Nineteenth and Coming of the Twentieth Century, New Jersey's Past and Future."

Following his name was written "It is a prophecy of the future I will picture for you," and right well did he do it. Physically he was in no condition to be present. In fact, he did not come until near the time for the speech-making to begin. He has been far from well for some time and made this effort because of his love for this live organization.

He spoke of the recent development of electrical force and prophesied much advance in the future. Narrated some of New Jersey's past achievements and claimed that New Jersey would be in the van in every new thing. Lamented the governor's absence, but said the mayor would do as well. He rapidly sketched the marvelous strides of our profession from what it was in his early years to its present proud position.

Dr. W. W. Walker followed with "A Few Observations." Having thus "carte blanche" to talk as he wished, he spoke but briefly, but put himself plainly on record as a dentist, first, last and all the time, evidently having but little in common with the idea that dentistry is of necessity a part of medicine.

After a bass solo by Mr. A. H. Cornish, Prof. Sanger, that is Dr. Roderick M. Sanger, of Orange, N. J., responded to the toast "Environment." He was very flowery, albeit good, describing how environment shapes and molds us whether we will or not.

Dr. J. Allen Osmun, of Newark, followed, responding to "Unity in Education," which was along the lines of all recent effort here in the East to advance and unify the standards of especially preliminary dental education. He also placed himself on record even more forcibly than did Dr. Walker as regards his idea of the relation of dentistry to medicine, claiming that dentistry was even superior to medicine in many things.

Dr. J. N. Vinson, of Newark, responded to the toast "Woman." We wish we could repeat just what the doctor said, but it is impossible. He spoke quickly, short, but to the point, eulogizing woman as he evidently knows well how to do.

Dr. George Emery Adams, responding to the toast "Our State Board," gave a résumé of much of the work of the past few months, which was of moment mainly for and to the members of the Central Dental Association.

"Our State Society" was responded to by the President, W. E. Truex, of Freehold, who made an earnest plea for coöperation this coming summer in the work of the New Jersey State Dental Society.

Following this came the annual reports of the officers and the election for the ensuing year.

Evidently, Mr. Editor, my notes have become somewhat mixed, for I do not remember at what point the address of the Mayor of Newark came in, but I think he followed Dr. Stockton. At any rate, he made a short but good speech, extolling the advantages of New Jersey in general and of Newark in particular. He referred humorously to the unpleasant acquaintance he had had with dentists, and the fact that their luxurious chairs were not as comfortable as the plainer one in which he had been seated that evening. He said: "Individually you have not used me in a manner provocative of fond memories, but collectively you are certainly very genial." He praised the New Jersey dentists for their advance in all directions, and complimented them upon being able to enforce the laws they had succeeded in having enacted.

The evening was a very enjoyable one, and, as usual, this society has kept up its record. It is a good thing to have one society around us here which can do great things continually and keep its differences fairly smothered—for, of course, in New Jersey there are differences as well as elsewhere. For instance, the resignation of the State Board of Examiners (or as they call it the "Dental Commission") from the National Board, which is now a matter of general history, has provoked no little difference of opinion among members. This difference came up sharply in the election of officers, which, being in public, could not be avoided. So, too, the recent cases of settlement with the Tooth Crown Co. by certain dentists in and around Newark has provoked much comment pro and con, and caused some strong differences of opinion. Despite which, keeping these differences to themselves as much as possible, they work together for the good of the whole, thus setting an enviable example to other dental organizations.

Yours truly,

"THE BOROUGHS."

FOREIGN CORRESPONDENCE.

LETTER FROM MELBOURNE—RE INDEPENDENT MEDICAL COLLEGE.

January 15, 1900.

Dear Dr. Harlan:—I am sending you by this mail a copy of our Syllabus of the Australian College of Dentistry. I am also writing to ask you about an institution which I believe to be fraudulent and which is issuing diplomas to any one who will send the fees charged. Several charlatans who are practicing here in Australia hold these diplomas. Of course they are of no value legally for they are not recognized by the government; still they pass as an honorable title with the public, to those who have no knowledge of such degrees as are issued by reputable colleges in America.

These men to whom I refer were in business here as dentists prior to the passing of the dental act, which is similar to that in Great Britain. They now advertise themselves as Doctors of Dental Surgery, U. S. A., but they are not recognized by the Dental Board of Victoria; still there is no law to prevent them calling themselves doctors of dental surgery.

I am the only American dentist who is a D. D. S. in this colony, but there are many who call themselves American dentists who have been to America and earned their title in a fair way. This class I do not object to, as there are many good men amongst them.

For colleges, or a college, to confer a degree upon any one who will pay the fee, is a slander to those institutions in America who have a good curriculum and teach in an honorable manner.

This institution to which I have referred is in Chicago, if such a college exists at all, and it is called the Independent Medical College, and the D. D. S. issued by them claims to be the dental department of it. This so-called college is situated at the corner of Van Buren and Leavitt Streets. President and Treasurer, J. Armstrong, M. D.; Vice President, J. H. Randall, Ph. D., M. D.; Secretary, Charles M. Hovey, LL. D. Through the U. S. Consul General I have lodged a complaint with the Department of the Secretary of State, Washington, and hope the general government will take such action as will protect the good name of correct educational training in the United States.

These constant abuses on the part of swindlers lower the tone and good name of the American colleges.

I hope I am not trespassing on your valuable time by writing to you on the subject.

With the compliments of the season and kind regards, I am,

Yours faithfully,
A. P. MERRILL, D. D. S.

REVIEWS AND ABSTRACTS.

Odontologische Blatter, Dec. '99, and Jan., 1900.

"THE TRAVELING OF THE TEETH, ESPECIALLY OF THE TWO LOWER BICUSPIDS," BY DR. W. DIECK, OF BERLIN.

After exhibiting a number of characteristic cases in drawing from casts the author comes to the conclusion that the forces of mastication and occlusion alone cannot be made responsible for this phenomenon inasmuch as after the early extraction of the first permanent molar the second bicuspid was seen to creep already one-half to one cm. distally to the spot originally allotted to it. Some forces as yet undefined must have their play in this. The essayist intimates that, to his own opinion, perhaps the contraction of the tissues in the healing process after extractions give the first impetus to their peculiar locomotion of teeth still in the depth of the jaw.

Oesterreiche Ungarische Vierteljahresschrift. Oct., 1899.

"PERTAINING TO THE SO-CALLED EARLY EXTRACTION OF THE SIXTH YEAR MOLAR," BY DR. ALFRED STERNFELD, MUNICH.

In this very able paper the essayist again gives an urgent warning to the conscientious dentist to faithfully watch the first permanent molars of his young clients. In handling these teeth not enough discrimination can be exercised. Proper conservative treatment and judicious extractions will save our patients much suffering. The fact remains that this tooth is the most frequently neglected and indiscriminately treated member of the dental family. We all are familiar with the bad results of this our shortcoming, but yet how many of us will really do the right thing at the right time in the premises. We all know the rules which should govern us in the treatment of this most interesting tooth; they are pounded into us during our college years, but the trouble is we do not train our eyes sufficiently to always observe closely.

H. F.

MEMORANDA.

Dr. Wm. A. Hammond, the eminent neurologist, is dead.

Dr. G. S. Solomon is located at 45 W. 45th St., New York.

Dr. H. A. Gunther, of Chicago, will sail for Europe early in April.

Sir James Paget, the president of the International Medical Congress, London (1881), is dead.

The Ohio Dental Journal has a new dress and the subscription has been reduced to $1 per year.

The Dental Register is now edited by Dr. N. S. Hoff, of Ann Arbor, Mich. Price reduced to $1 per year.

Have you used nirvanin? It must be boiled to make it a stable solution for hypodermic use. Two to four per cent solutions are best.

CORRECTION.

On page 162, February, the word *filed* instead of filled makes sense of the sentence.

Dr. W. Girling, of Chicago, who is connected with the United States Commission to the International Exposition, Paris, will sail early in April to be gone until December next.

The army and navy dental surgeon bill is in better shape now than ever, as it is has the endorsement of the surgeon-general of the army, and is likely to pass in some form very soon.

Mr. Morton Smale, M. R. C. S., England, and E. L. Lloyd Williams, M. R. C. S., England, are visiting this country to inspect the dental schools and make a report on their return to England.

A vote is being taken at present writing about the next meeting of the National Dental Association. We are for July 10, as that is about the earliest and latest date for all who wish to attend.

We understand that the $200 competition prize of the *Cosmopolitan Magazine* for the best essay on the "Care of the Teeth" has not been awarded —although the competition closed August 20, 1899.

It seems probable that there will be a Pan-American Dental Congress in Buffalo in 1901. A committee has been appointed to take charge of the matter on behalf of the New York State Dental Society.

The Kansas City Dental College held a very successful clinic February 22 and 23. There were about one hundred and fifty present and the interest was kept up during the two days. If any one thinks that all the ingenuity, knowledge and wisdom in the dental profession is centered in New York, Chicago, St. Louis or Minneapolis, he should have attended this clinic and he would have taken his hat off to the native talent. The proceedings closed with a banquet Friday evening which we could not attend on account of not being quite recovered from the grippe.

There must be some new blood in the Kentucky State Dental Association, as we are in receipt of a preliminary program big enough to consume about a week if all the papers are read and the clinics are given. We wish we could attend this meeting and also the one in Tennessee, but time is what is lacking.

The next regular meeting of the State Board of Dental Examiners will be held in Chicago, May 3, 4, 5, at the Chicago Business College, 67 Wabash Ave. Applicants must come prepared with instruments and material to do some practical work. Those desiring to take the examination should notify the secretary, ten days before the date of meeting. J. H. SMYSER, *Sec'y*,
70 State St., Chicago, Ill.

MRS. CAUDLE LET LOOSE.

If the editor of the *Dental Digest* will simply answer for his own shortcomings we will take care of our own. Where the shoe pinches so hard that it consumes two or more pages for him to let off spleen, venom and other ungentlemanly things, his case must be very bad indeed. The dental profession can take care of itself without advice from manufacturers and dealers—unless it is sought.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-sixth annual meeting will be held in Springfield May 8 to 11. Drs. E. H. Allen, Executive Committee, and J. E. Hinkins, Supervisor of Clinics, promise an excellent program. The entire program will be printed in the April number of this journal. All reputable dentists are cordially invited to attend.

A. H. PECK, *Sec'y*,
92 State St., Chicago.

SAILING UNDER FALSE COLORS.

Several dentists have sent me circulars of a concern in St. Louis, called the "Haskill Dental Laboratory," asking if it was a branch of mine. I wrote to a friend in St. Louis to investigate. He found the address they gave is a cigar store. Upon inquiry there it was found they did not know where the concern was located; whether there was a Haskill connected with it; did not know where any of the concern could be seen. The St. Louis Dental Co. seemed to know nothing about them. He further learned that the so-called "Haskill" is the mechanical man of the "National Dental Parlor Co.," and concludes that the concern is a fake. L. P. HASKELL.
96 State St.

The following list of clinics will be given at the Indiana State Dental Association, at Indianapolis, commencing June 19, 1900:

Dr. T. W. Brophy, Chicago, oral surgery; Dr. W. V-B. Ames, Chicago, some of the possibilities of new process oxy-phosphate of copper; Dr. Grafton Monroe, Springfield, Ill., some uses of hydronapthol; Dr. F. C. Green, New Albany, lower impressions; Dr. M. H. Chappell, Knightstown, treating pulpless teeth, using the solution of N. K.; Dr. W. A. Heckard, Indianapolis, clinical demonstration of nitrous oxid, oxygen and compressed air; Dr. E. Ervin, Terre Haute, cast gold fillings from models; Dr. T. A. Goodwin, Warsaw, porcelain inlay; Dr. J. Q. Byram, Indianapolis, opening pulp canals with sulphuric acid, and microscopic slides showing the action of the acid on dentine; Dr. F. M. Boozer, Logansport, immediate root filling in anterior teeth; Dr. J. S. McCurdy, Fort Wayne, will show cases in orthodontia; Dr. Alex. Jameson, Indianapolis, pressure anesthesia; Dr. F. J. Prow, Bloomington, oxy-phosphate of copper cement; Dr. G. E. Johnson, Fort Wayne, Logan crown with gold attachment; Dr. E. E. Reese, Indianapolis, porcelain inlay; Dr. N. W. Hiatt, Marion, porcelain faced gold crowns; Dr. W. W. Mungen, Fort Wayne, Logan crown with special gold attachment, and showing the Prothero investment; Dr. Jesse McGee, Rushville, modeling compound impressions; Dr. C. W. Throop, Muncie, the dentenax tooth and model of set of teeth without plate with crown attachments; Dr. J. M. Teal, Kendallville, changing shape and color of porcelain teeth; Dr. W. P. Crowell, Monticello, clinic promised; Dr. H. A. Moyer, Kendallville, clinic promised; Dr. J. F. Werner, Elkhart, clinic promised.

RECENT PATENTS RELATING TO DENTISTRY.

643,443. Dental tool for expressing mercury from amalgam. David Aiken, Winnsborough, S. C.

643,868. Denture, Willis H. Dwight, Le Mars, Iowa.

643,898. Dental oven, Harry M. Hill, St. Louis, Mo.

644,355. Fountain cuspidor, George B. Haycock, Chicago, Ill.

644,970. Dental flask, Thomas G. Donaldson, Baltimore, Md.

644,583. Artificial denture, John H. Doyle, Atlanta, Ga.

644,705. Impression-band for dentistry, George Evans, assignor to Evans Company, New York, N. Y.

644,803. Artificial tooth crown, Henry D. Justi, Philadelphia, Pa.

644,932. Dental tool, Clinton W. Miller, Chicago, Ill.

644,640. Dental chair, Gideon Sibley, Philadelphia, Pa.

634,641. Dental chair, Gideon Sibley, Philadelphia, Pa.

644,642. Dental chair, Gideon Sibley, Philadelphia, Pa.

644,643. Armrest for dental chairs, Gideon Sibley, Philadelphia, Pa.

644,644. Backrest for dental chairs, Gideon Sibley, Philadelphia, Pa.

LABELS.

7,379. "Thymol-Myrrh" for tooth paste, Charles Wright Company, Detroit, Mich.

THE CARE OF THE MOUTH IN SICKNESS. BY L. E. CASE, M. D.

Perhaps no part of the body is so often neglected as the mouth; especially is this noticeable in the case of children. A mother who will religiously bathe her child and keep its body sweet and clean will often fail to cleanse its mouth. A new born infant should have its mouth washed after each feeding; a soft cloth wet in a weak solution of boracic acid should be used for this purpose. If this were always done we would rarely find a case of infantile sore mouth.

After the teeth come and the mouth is large enough, a small soft brush should be used; the teeth and mouth should be thoroughly cleaned at least twice daily.

In illness where sordes and mucus accumulate rapidly, and where the tongue and lips are parched and stiff, attention is needed every hour; the mouth should be kept moist and the same treatment carried out through the night as during the day. Boracic acid solution, listerine, lemon juice, glycerine and distilled water are all refreshing, and soften the tissues; where the lips are chapped or fissures appear, a lubricant of cold cream or sterilized vaseline should be applied. Where the gums are spongy or soft and bleed readily a few drops of tinct. of myrrh added to pure water will help to harden them. Small squares of old linen or soft gauze should be used instead of a brush where one is ill cr weak. These should be immediately burned after use.

Every part of the mouth should be cleansed; behind the wisdom teeth, the roof of the mouth and under the tongue; lemon juice and water will remove the fir from a thickly coated tongue. Where the teeth are sensitive the water used should be slightly warm.—*Southern California Practitioner.*

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Program of essays to be read before the Odontographic Society of Chicago for the year 1900.

February. "A Study of Dental Deformities in Fine Art and Sculpture," illustrated with fifty stereopticon views, B. J. Cigrand. Discussion opened by C. S. Case.

March. "Dental Jurisprudence," C. E. Milroy, M. A., LL. B. Discussion opened by S. V. Clevenger, M. D. "The Dentist in the Army, From the Standpoint of an Old Soldier," R. B. Tuller. Discussion opened by H. H. Wilson.

April. "Heredity and Environment," C. J. Whalen, M. D. Discussion opened by C. E. Bentley. "Extraction and Replantation, a Cure for Chronic Alveolar Abscess and Pyorrhea Alveolaris," R. J. Cruise. Discussion opened by J. E. Keefe.

May.—"Emergency Crown," J. E. Nyman. Report of committee appointed to investigate what work has been done in the public schools in civilized world by dentists, C. E. Bentley. Discussion opened by H. J. Goslee.

September.—"Relations of Dental Schools to the Profession," T. Menges. Discussion opened by I. B. Crissman. "Something About Cleaning Teeth," D. M. Cattell. Discussion opened by R. Good.

October.—"The Mouth as an Index to the General Physical Conditions," C. T. Gramm. "Peculiar Pathological Phenomena," E. R. Carpenter. Discussion opened by A. W. Harlan.

November.—"Value of New Medicinal Agents in Dentistry," A. H. Peck. Discussion opened by G. W. Cook. Subject not given, J. H. Prothero.

December. "Matrices for Approximal Gold Fillings," G. E. Hawkins. Discussion opened by O. I. Spitz. Annual election.

Died March 1st, Dr. Pliny J. Lawrence, Chicago, Ill.

THE

DENTAL REVIEW.

Vol. XIV. CHICAGO, APRIL 15, 1900. No. 4

ORIGINAL COMMUNICATIONS.

Comparative Dental Anatomy as a Basic Principle for Orthodontists.*

By J. N. McDowell, D. D. S., Chicago, Ill.

Comparative dental anatomy comprises such a wide field that it can only be dealt with scientifically by devoting a chapter to each individual form of classification, which for a paper before a dental society would be impracticable; consequently, only a general consideration of the subject has been taken up.

Teeth are hard, firm substance situated at the beginning of the alimentary canal in that part called the oral cavity or mouth. They are shaped and formed for the best material assistance in sustaining life, according to the species or class. They are used for seizing, cutting, tearing and triturating food substance preparatory to deglutition, absorption and assimilation.

Besides the mechanical function of the teeth in maintaining existence, they are necessary adjuncts in vocalization and speech, as ornaments of facial beauty, and they assist in maintaining the normal harmonious relations of the features. In many animals, besides the use in the act of prehension, they are used as weapons for combat and defense.

By the peculiar shapes, forms, structure and attachment of the teeth their functional activity, the food, the habits and the general environment become a comparatively easy problem for classification for the anatomist.

"Anatomy is the science of organization. It studies the structures of animated beings when these have been deprived of life. It comprises two grand divisions: *Physiological anatomy*, which describes healthy organs, and *pathological anatomy*, whose object is the description of diseased organs.

"*Physiological anatomy* in turn embraces general anatomy and descriptive anatomy. Descriptive anatomy studies the situation, form and relation of organs as well as the various tissues composing them. If the study be devoted to a single species it is designated special anatomy, as human anatomy. When descriptive anatomy embraces the study of the organization of the entire animal kingdom and examines the difference which characterizes the same organ or the same series of organs in each class, family, genus or species, it is named *comparative anatomy*."

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*Read before the Chicago Dental Society.

Comparative dental anatomy then is that branch of anatomy which treats of or studies the comparative anatomy of the teeth of all forms of animal life. It studies the development, form, size, shape, position, number, attachment and detailed function of the teeth. This comparative study and classification of the teeth of the lower animals serves as a medium for the scientific study of the teeth of man. The full value and importance of the teeth of man cannot be determined by studying the teeth of man alone. The importance of their function, variation in form, number, position, attachment and the occlusional planes in normal contact must be fully illustrated by scientific study in comparing the forms, structure, sizes, number, variation and functional activity from the lowest form of animal life to the highest. By such a study valuable lessons and important facts are brought out, giving a broad, comprehensive basis for understanding the relationship of the functional activity of the teeth of man with that of the lower animals according to the form and the evolutionary course they have pursued or undergone and the indication and probable causes of variations in development and number.

To familiarize ourselves with the many forms and varieties of teeth and their particular function with which nature has endowed the different classes of animal life, it is necessary that we first take up the lowest forms; that is, those forms where the armature of the mouth consists of teeth that play an important part in maintaining existence. By this means we get at the primitive and rudimentary forms and functions of the teeth and by successive steps advancing upward, comparing the different teeth of different classes until man is reached, we have the opportunity of comparing not only the changes and modifications in their forms, but also see that food, habit and environment have a decided effect upon this modification and changes of tooth forms for functional service.

In considering the comparative dental anatomy of the teeth of animal life we take up the subject according to classification, invertebrate and vertebrate.

The invertebrates consist of many varieties and forms. They continue their existence without teeth or masticating armature in the mouth. They have, however, cilia, calcified connective tissue and beaks for prehension. (The mastication of food substance is performed by gizzards.)

Taking up the study of vertebrates, we have a great kingdom to consider. We have what we may term the lower vertebrates, comprising fishes and reptiles, whose teeth are composed mainly of dentine and are positioned in different parts of the mouth and sometimes even in the thorax. The higher vertebrate comprise those where the teeth are made up of dentine, cementum and enamel and the teeth are confined to the maxillary bone.

In taking up the study of the teeth of fishes, reptiles and mammals I shall only consider the subject of teeth in general and the most important conditions pertaining to them that are of general interest and value in the study of the occlusion and function of the teeth, making deductions and comparisons from the general condition in the recapitulation.

FISHES.

The teeth of fishes vary a great deal according to form, size, number, function and attachment, varying from one sharp-pointed, spinous-shaped tooth, as found in the hag fish, up to that of countless numbers, as found in the pike. (A, Fig. 1.)

Form. The general form is (with some exceptions) that of the simple cone tooth. It may vary some in size, some being long, sharp-pointed and spinous, others short, with a very blunt point. (B, Fig. 1.) They may tend toward prism-like shape, oval or slightly flattened. In the great majority we find that the teeth are original cone shape.

Position and Function. The position of the teeth varies according to their functional activity. There may be numerous small or minute teeth in the roof of the mouth which aid in deglutition only, while the marginal edges of the jaws are occupied by the typical sharp-pointed, cone-shaped teeth for seizing, penetrating and holding food substance. The marginal teeth are more or less recurved, according to attachments. This recurving of the teeth not only prevents the escape of the prey, but is an assistance in deglutition. The teeth in the majority of the fish kingdom, owing to their form, are useless as masticating implements. However, nature has placed them in such favorable positions that the best adaptation for seizing, holding and piercing food substance is given on closure of the jaws.

REPTILES.

The teeth of reptiles do not vary so much in size, form and position as those of fishes, but are more nearly uniform.

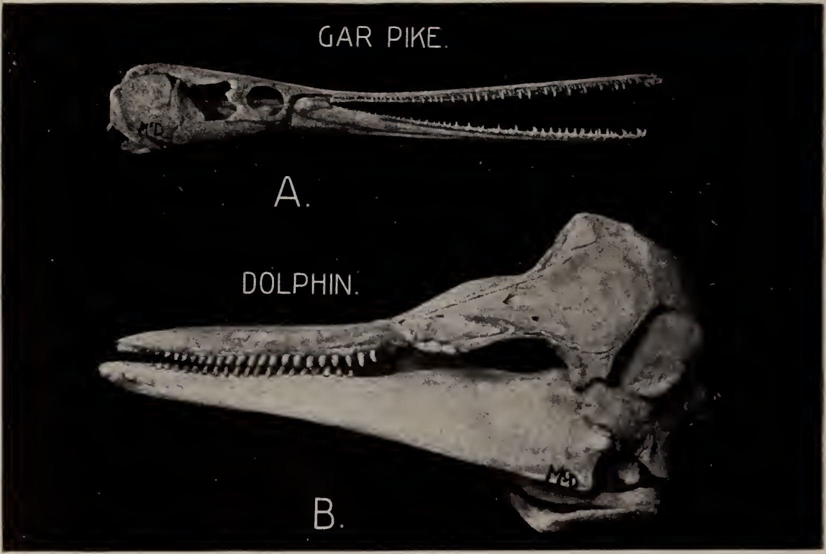

FIG. 1.

Form. The general form of the teeth of reptiles is also that of a cone. This conical form does not vary so much in lizards, crocodiles and alligators as it does in snakes, some snakes being entirely edentulous but having calcified projections along the spine, where eggs and similar food are crushed in the act of swallowing. The typical form of the teeth of snakes is sharp and spinous, and they are usually recurved. (A, Fig. 2.) Some have very much larger teeth than others, being specialized for particular purposes, as in the rattle or cobra. The teeth of this class, especially those of crocodiles and alligators, are not so different in form as they are in size, varying from the small peg-shaped to the large conical with slightly recurved tips.

The position of the teeth of reptiles in general varies but little. In the functional service their form and position are the index of their use, being the typical conical shape, varying from round blunt points to the sharp pointed. Their service is limited to seizing, holding and piercing food substances prior to the act of deglutition. In the crocodile and alligator usually about four teeth in the anterior part of the mouth are much larger, being longer and sharper pointed. These teeth have been highly developed to aid in seizing and holding the prey, while further back in the mouth where greatest force on the closure of the jaws can be obtained, the teeth are again much larger, being specialized for penetrating and mangling food substance prior to deglu-

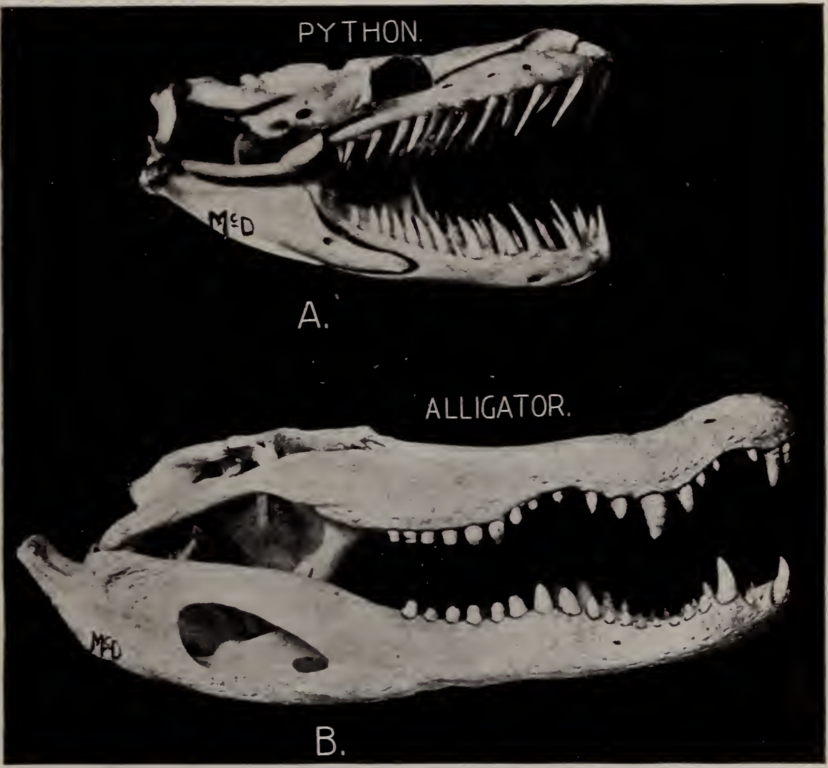

Fig. 2.

tition. (B, Fig. 2.) As a masticating armature the teeth of reptiles have little more value than the teeth of fishes. As indicated by their form, the teeth are specialized for seizing, tearing and holding food substance.

EDENTATA CLASS.

Edentata is the term used for those animals where there is an absence of incisors, as found in the armadillo. The true edentata are entirely without teeth, as found in the ant-eater, whose long, slender jaws are devoid of tooth forms, they using their tongues entirely for obtaining food. The teeth of the armadillo are round or cylindrical in form, situated upon the lateral halves of the upper and lower jaws. They have no incisors. (A, Fig. 3.) The occlusional surfaces are typical wedge-shape in

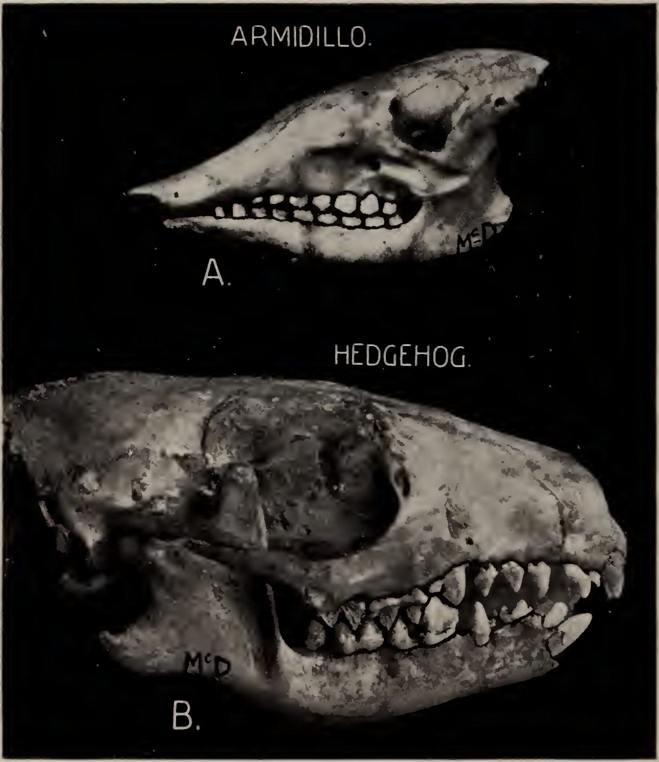

Fig. 3.

form. The teeth alternate in position and are thus worn wedge-shaped in the act of mastication. This is the first variation from the typical cone-shaped tooth. While there is little modification, there is enough to make a distinction in form, position and function.

INSECTIVORA.

From *insectum* and *vorato*, to devour. These are animals whose food consists principally of insects, and the general form and position of the teeth are best adapted for that kind of food.

Form. The general form of the teeth of the insectivora class is about the same. They differ a great deal in size, position and form from those of the reptiles and fishes and edentata class. This is the first class that have teeth similar to true incisors. The front or incisor teeth are flattened or oval, cone-shaped, with blunt cutting edges. The tendency is for the cuspid to be a little longer than the other teeth, they being long and sharp pointed, but having an enlarged base. The next three teeth are of about the same shape, only much smaller, having the sharp-pointed cusps and enlarged base. The next teeth are typical molars in shape, and instead of one sharp-pointed cusp, have three or four, and sometimes five sharp-pointed cusps. The teeth are positioned around the marginal edges of the jaw. While these teeth bear no resemblance to those of the lower forms, the general outline of the sharp-pointed, cone-shaped tooth is still carried along in the sharp-pointed cusps of the premolars and molars proper.

Function. The insectivora feed upon insects and the sharp cusps of the teeth are adapted for piercing and crushing the chitinous bodies of the same. While the molars have long pointed cusps, these cusps interlace and conform in such a manner that there is perfect adaptation of the teeth on the closure of the jaws, thus giving some masticating surface as well as a piercing and crushing ability. (B, Fig. 3.)

CARNIVOROUS CLASS.

From *caro*, flesh, and *vora*, to devour. These are animals which live upon animal flesh, and their teeth are highly specialized for this kind of diet, being adapted with sharp cusps for seizing, tearing and cutting power.

Form. The general form of the teeth of the carnivora is similar to that of the insectivora, only that the former are larger, stronger and more highly specialized for a different kind of food. The incisors are small, round, short and blunt or tuberculated on the cutting edges. The next teeth, the cuspids, are larger, stronger and very long, with sharp-pointed cusps. They are recurved and are used for seizing, tearing and piercing food substances. There is a space between the upper incisor and cuspid for the point of the lower cuspid to pass. The premolars are distal to the cuspids and are small and compressed, the first being nothing more than a tuberculated cone. The second premolar has one sharp, con-

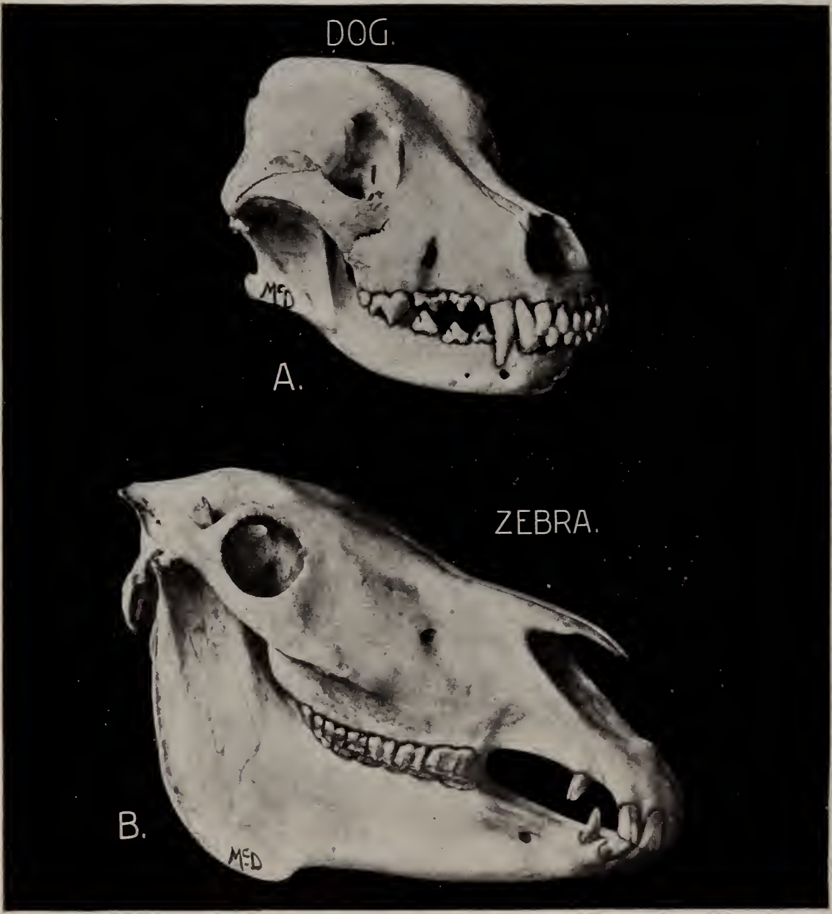

Fig. 4.

ical cusp, and a small cusp depressed on the distal surface. The other molars are sectional teeth, used for cutting, and having larger sharp cusps conformed and shaped so that their action is that of blades cutting on closure of the jaws. (A, Fig. 4.) They are also tuberculated on the distal and lingual surfaces, which aids in crushing food substances.

HERBIVOROUS CLASS.

Herba, grass; *vora*, to devour. These are animals which have teeth specialized for a vegetable diet. Their teeth in form and shape are exactly opposite to those of the carnivorous class. There are some peculiarities in the development of the anterior teeth. In the upper and lower arches the incisors are developed and usually in the male, cuspids are developed also; in some forms, however, as the *bos taurus*, or cow, the incisors are developed in the lower arch only. The molar teeth in general form are about the same, varying somewhat in the pattern and make up of the teeth, which are distinct and characteristic in each animal.

Form. The incisors are usually broad and slightly recurved. The molars are large, squarish or cubical in shape. The occlusional surfaces are of a peculiar pattern, having rivulates of enamel, dentine and cementum running across the surfaces, which, owing to the different degrees of hardness, are worn away in different stages, making a very rough and uneven surface, which is necessary for the destruction and crushing of the fibers of vegetable foods. (B, Fig. 4.)

PRIMATES.

This class is composed of lemurs, monkeys and apes. The gorilla teeth approach most nearly to those of man, but the gorilla jaws are much larger and stronger, and are squarish in front. The cuspids in the gorilla are of great size and there is a distema in front of the upper cuspid for the point of the lower cuspid in closure of the jaws. (A, Fig. 5.) Though the teeth are larger, stronger and very coarse, there is a general resemblance to the dentition of man in number, position and form. The premolars, known as bicuspids in man, are much larger, with ridges connecting the cusps. Still, the general outline is the same as that in man. In the gorilla the teeth increase in size from before backward in the molars, the third molar being the largest, while in man the third is the smallest. In the lower jaw the molars have five well defined cusps. In the primate the jaws are truly prognathous or protruding, and the facial angle is very low. Instead of the round, symmetrical curves of the arches, as found in man, the outline is angular and squarish in front, caused by the size and position of the cuspids. As monkeys and apes use their fore limbs for prehension the principal reason for such enormous development of the cuspids seems to be for use in combat and defense. (B, Fig. 5.)

Recapitulation: The original or primitive tooth is a single cusp or cone, as found in the teeth of fish and reptiles. From this simple form all tooth forms have probably developed by modification and duplication of the single cone. This cusp or cone shape is clearly traceable in all the evolutionary changes of the teeth from the lowest to the highest type. In man the upper molars are formed by the fusing of four cones, and the lower by four, and sometimes five, in such a manner that when the upper teeth occlude with the lower the best adaptation is secured for mastication of food and the mutual support of the teeth in the arches when the jaws are closed in the act of mastication. As was illustrated in fishes and reptiles, the principal use of the single cusp or cone-shaped tooth was for the seizing of prey and holding food substance. As we advanced upward, changes were made in the shape and form of the tooth, according to the foods and habits of

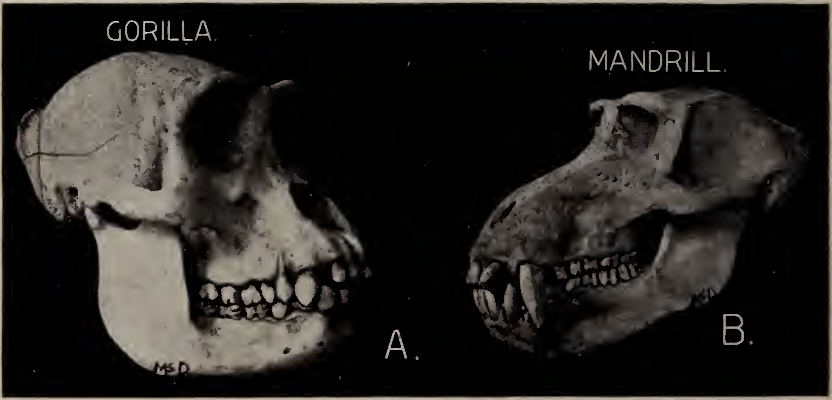

Fig. 5.

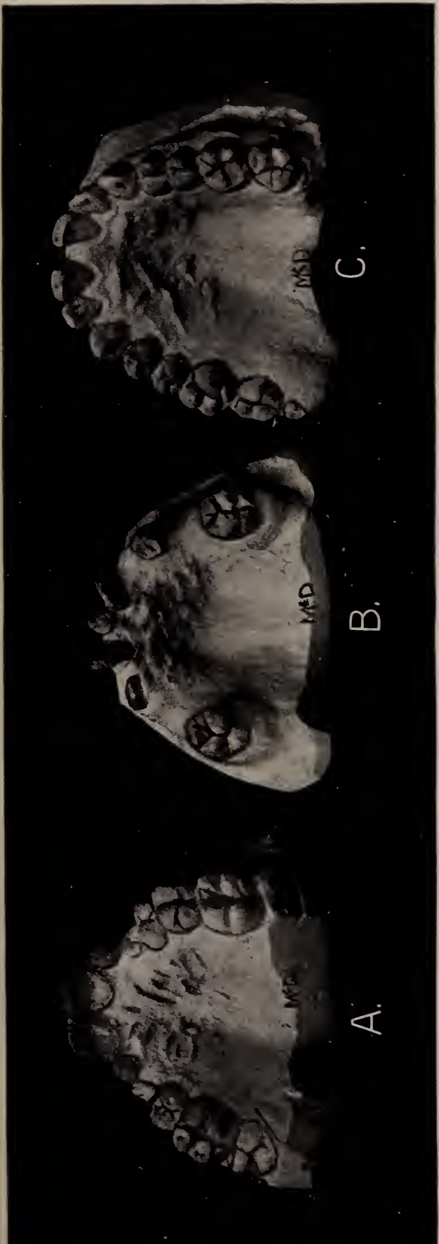

Fig. 6.

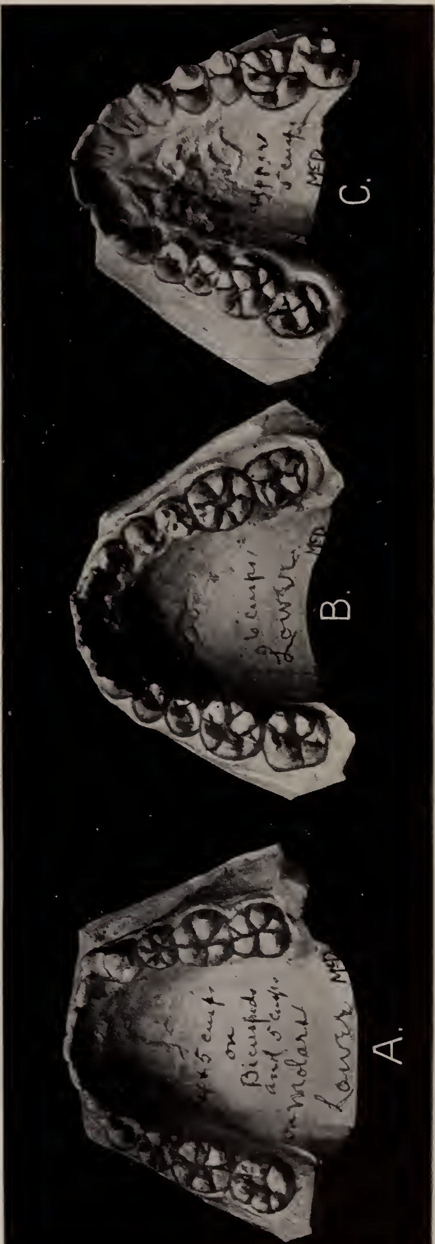

Fig. 7.

the animal. In the insectivora the teeth were formed into many sharp-pointed cusps for piercing the chitinous bodies of insects, and yet having a base large enough to admit of some mastication.

In the carnivora, instead of many teeth for seizing and tearing, there are only four, highly developed cuspids specialized to carry on the work of many. As there is little or no masticating in the carnivora, the teeth are developed accordingly, while in the herbivora the incisors are broad and flattened for cutting purposes entirely, and the molars are highly specialized for grinding exclusively.

In man the cones in the anterior part of the mouth are flattened into cutting edges, while the cuspids still retain the principal form of the cone, which is traced down through all classes to the lower forms. The bicuspids are formed by the coalescing of two cones and the molars by several cones. As man uses his arms and hands for prehension and his food consists of a mixed diet, the cuspids are not specialized for seizing, tearing or piercing purposes, nor are the molars specialized with flat occlusional surfaces for grinding entirely, nor are they sharp pointed for piercing and cutting; but they seem to have adopted a medium half way between, which is best adapted for the mastication of mixed foods. The reversion to the lower form is often found in man in the form of supernumerary teeth, in a well developed cone-shaped tooth similar to that of fishes. (A and B, Fig. 6.) Extra bicuspids, molars, laterals and centrals, also extra cusp on the bicuspids and molars. (A, B and C, Fig. 7.)

Man has but thirty-two teeth, while the typical mammalian formula is forty-four. Hence we may say that man has lost about twelve teeth, and these reappear as extra laterals, bicuspids and fourth molars.

The study of the occlusion of the dental organs in man with the comparative dental organs in animals is of the greatest importance to the dental profession, whether one is devoting special interest to the subject of orthodontia, operative technics, prosthetic technics, or some other branch of dentistry. It is just as important in one branch as another, for it all leads to one grand consideration, the occlusion of the teeth.

To understand the occlusion of the teeth is to have a knowledge of their shape, sizes, function and variation, construction, occlusional surfaces and antagonizing incline planes in normal contact.

Any variation from the normal by pathological condition, reversion, supernumerary or extra teeth or mal-developed teeth impairs the normal functional activity. Seldom are the abnormal conditions that beset man found in the lower animals. And such mal-conditions as retrusion or protrusion of the lower jaw as the result of mal-occlusion are never found in the lower animals.

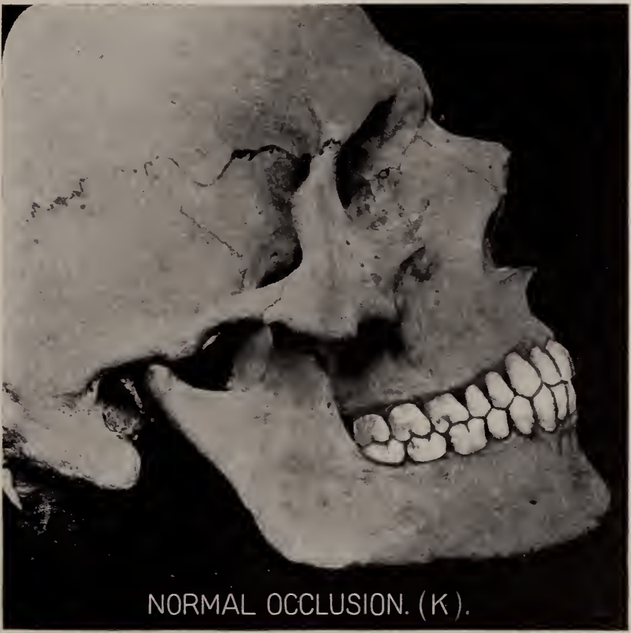

Fig. 8.

If the teeth of man were considered exclusively without any comparison or reference to the lower forms, mal-occlusion of the teeth, supernumerary and mal-formed teeth would be uncertain problems.

It is from of the unvarying adaptability of the teeth of the lower forms that we can best make deductions for comparison. Nature never makes a mistake in placing the large, strong cuspids of the carnivora class, or modifies the size and position of the larger grinding teeth of the hebivora. The functional activity of the teeth throughout the entire vertebrate kingdom, while varying greatly in form, structure, number and position, is the same —that of seizing, piercing, cutting and grinding food substance preparatory to deglutition. This functional activity is varied more or less according to the movement of the jaws. In the herbivora the teeth are cubical in shape, with rough, flat surfaces for grinding. The articulation of the condyle of the lower jaw is of such nature as to allow of enormous lateral movement, while in the carnivora it is limited to the vertical movement and the teeth are shaped accordingly for the best functional service and adaptation in closure of the jaws. The result of this limited movement in different animal types specializes the teeth for reduction of certain kinds of foods best and individualizes the tooth form.

The treatment of all cases of orthodontia varies according to the occlusion. To understand the different forms of mal-occlusion it is necessary to have a standard to work to and to work from. This standard is normal occlusion. (Fig. 8.)

When the teeth come together, the upper arch being larger, is molded over the lower and the buccal cusps of the lower bicuspids and molars occlude between the lingual and buccal of the upper. Dr. Angle suggests calling this the "greatest point of contact." Following this point of contact around to the opposite side, we have the line of contact or line of occlusion, which passes from the distal to mesial, over the buccal cusps of the bicuspids and molars and over the cutting edges of cuspids and incisors of the lower arch. Deductions are made according to the variation of the occlusion or position of the teeth from the line of occlusion.

In infancy the jaws are large enough at birth to accommodate all of the temporary teeth, which later erupt successively, one after the other from before backward; consequently there is no opportunity for irregularity or mal-occlusion in the temporary set. Why nature passes the temporary teeth and concentrates all of her anomalies on the permanent set is a mystery that perhaps may never be explained.

In the eruption of the permanent teeth usually the first molar and permanent incisors come in about the same time, followed by the laterals, then the first and second bicuspids, cuspids and second molar. This changing of position in the eruption of the permanent teeth is a prolific cause of mal-occlusion. If they erupted successively from before backwards, as the temporary teeth do, a great many conditions of mal-occlusion would be eliminated. Considering the fact that neurotic conditions, lack of normal development of the bones, pathological growths, hereditary conditions, delayed eruption or extraction, supernumerary teeth, etc., all have more or less tendency to produce mal-occlusion of some kind, out of every 100 mouths, 96 per cent will be found to contain mal-occlusion in some form. The ideal normal occlusion is rarely ever found in man.

Taking up the anomalies, supernumerary teeth, etc., in the order of their general appearance, we have first the typical cone-shaped, supernumerary, well developed extra laterals, centrals, bicuspid and fourth molar. Following this we have the malformed centrals or laterals (A, Fig. 6), third molars (C, Fig. 6), and, finally, first and second molars. Bicuspids rarely ever vary in form, while the cuspids are never known to vary from the general form, otherwise than having a small cusp on the lingual surface.

The extra teeth man is sometimes beset with are undoubtedly due to reversion or evolutionary changes that are constantly going on, and this is a problem that such men as Darwin, Tomes, Cope, Ryder and others have practically settled.

Tomes says, "He would indeed be a rash man who ventured to assert that he recognized all the agencies which are at work in the molding of animal and vegetable forms, but it is safe to say that at the present time we are acquainted with natural selection or survival of the fittest, an agency by which variations beneficial to their possessor will be preserved and intensified in successive generations."

J. A. Ryder says that the pattern of the molar teeth of herbivora is the result of the extent and direction of the excursions of the mendible when it is in use and so depends upon the form of the glenoid cavity and of the condyle, and that the greatest modification is to be found nearest the articulation, where the greatest force is exerted.

Kukenthal and Rose suggest that the occurrence of multicuspid teeth may be explained by the shortening of the jaw and consequent crowding of the teeth, leading to the coalescence of several simple conical teeth in the formation of a single tooth with several cusps. Hence, they would consider any five-cusped human molar as the descendant of five original distal simple cones.

The typical mammalia dentition as given by Tomes is as follows:

I 3-3 C 1-1 PM 4-4 M 3-3=44.

He says the general rule would appear to be that incisors were lost from the outer end by the third being absent when there are only two incisors; premolars from the front of the series being the first to drop out of the formula and molars from the hinder end, the third being the first to disappear.

Thompson says: "Thus homologies with the teeth of lower forms can be demonstrated, and analogous structures in other location will throw light upon the variations by these studies. This will illustrate the principles which have controlled the growth and organization, and explain the varied details of function. The elaboration of the crown by the duplication of the primitive cone is an exclusively mammalian character, for the repetition must be shown in the root also. The primitive cone is of course reptilian and from this all teeth, even the most highly specialized, were developed."

A change in the formation of one tooth alone sometimes may vary the relation of the arches to each other. The arches may be round and symmetrical in their outline, the teeth may all be in the proper position and still the relation to each other may be more or less inharmonious as the result of underdevelopment or overdevelopment of one or several teeth. Supernumerary or extra teeth always vary the harmony of the arches. Malformed permanent teeth, besides creating inharmonious relation of the arches, always deflect more or less the position of the adjacent teeth. However, the third molars (C, Fig. 6) being the last to erupt, have no perceptible effect on the occlusion, whether malformed or not.

While it is very important that we have a knowledge of the possible cause by evolutionary changes as well as by pathological conditions, it is not so important to know the reason *why* there are so many variations in the occlusion and development of the teeth of man as it is to recognize the changes in the development or modification of the occlusion by the knowledge of the correct forms, normal position and perfect adaptation in occlusional contact of the teeth of the lower forms, as well as man.

The correction or restoration of mal-occlusion or inharmonious relations of the arches is, then, based upon the scientific knowledge of comparative dental anatomy.

With the lantern I will review in detail the general forms and adaptability of the teeth of the classes that have been considered, also different forms of mal-occlusion, the effects of the eruption of supernumerary teeth, extra laterals, centrals, bicuspids, the development of extra cusps and malformed permanent teeth found in man.

PRESIDENT'S ADDRESS.*

By HART J. GOSLEE, D. D. S., CHICAGO, ILL.

In the brilliant and almost unprecedented growth and progress of this society, I am not clear as to whether it has been the *usual* custom for your retiring executive officer to close his official career by presenting for your consideration at this time something in the nature of an especially prepared *address*, or not; and yet, I have recently been advised that such was to be expected of me at least, and indeed it seems but fitting to the occasion that some message of greeting should come from him whom you have honored by entrusting the reins of government and authority, which guide and control in an humble way, the destiny of the hour of this most distinguished body.

In accord with this sentiment and thought, it is with a firm conviction that I feel impelled to acknowledge that but few of the chosen ones are so blessed with those attributes of nature which might enable one to do full justice to the occasion, through the medium of words; and I assure you, gentlemen, that while the duty and privilege is a pleasant one, the effort is launched with an intuitive appreciation of my own incapacity.

When I pause and reflect, after a cursory glance over the roll of membership of this organization, I cannot refrain from becoming somewhat satiated with a feeling of *envy*; for had mother nature, in the glory of her wisdom and judgment in the distribution of intellect and genius, bestowed upon me the polished, suave eloquence of a C. N. Johnson; or the exuberant, effulgent vocabulary of a "Brother" Bentley; or the silver-tongued oratorical powers of a "Jack" Nyman; or the irresistible "glad hand" enthusiasm of a Gallie; or the cordial, indomitable sagacity of a "Grandpa" Brophy; or the political and humorous propensities of a "Prosthetic Studio" Perry; or even the omnipotent nerve of our "Scorcher President" the "Terrible Swede," I confess that I might enter into the usurpation of such a privilege with much less misgivings and apprehension; however, since Providence in her kindly ministrations has not smiled upon me so favorably, I willingly wave all rights to such consideration as they would merit, and invoke your brief indulgence merely on the grounds of earnestness, sincerity, and pride, clothed in humble raiments.

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*Delivered to the Odontographic Society at the annual banquet, Leland Hotel, January 15, 1900.

This spirit of pride, gentlemen, which is synonymous with activity and success, to an extent, in all walks of life, is dominant throughout our ranks; and coupled with it by a natural sequence, the genial good fellowship and cordial fraternalism which it is our good fortune to enjoy, in a great measure accounts for the almost marvelous progress we have made along the highway of educational and professional advancement; a highway banked upon the one side with the garlands of scientific attainments, and upon the other with the entwined wreaths of a mutual unselfish desire to aid and assist each other.

The result of this collaboration, this merging together of mutual interests, this brotherly love which we bear alike to our profession and to each other, creates enthusiasm and stimulates energy, and as true as is the law of force which implies that "to each action there is a like reaction," a great and universal good must be accomplished; and this must redound to the credit of such organizations and result in the uplifting and betterment of our profession, and in the broadening of our professional scope until such time as we shall see the beneficent reward of a general awakening of the kindred sciences, and even the laity, to the fact that dentistry occupies a prominent and conspicuous place among, and of equal footing and importance with the learned scientific professions of the world; and that dentists in this era which marks the advent of the twentieth century, are men of culture, refinement and education.

This is a portion of the work that the Odontographic Society, young, yet powerful in influence, now just budding into the thirteenth year of its existence, is aiding very materially in accomplishing. And I think that it would be pardonable in me to say that we are perhaps doing more than many similar societies, for the reason that with a membership of nearly 400, we are the largest local dental society in the world; and while we are favored with the affiliation of the older members of the profession, to whose counsel, wisdom and experience we shall always be indebted, we are distinctively the representative young men's society, controlled and governed in the main by the younger element.

Consider for a moment the good such a body is destined to accomplish in the community, for there is indeed a no more important phase of professional education than the molding of the professional character of those just entering upon the threshold, and we are particularly fitted to wield a wholesome influence and lend a helping hand in the right direction, at the right time, because of the wise coöperation and counsel of those whose advent into the profession preceded ours by a score or more of years, gently blended with the enthusiasm and energy of youth.

The Odontographic Society is not only the largest and the representative body of this vast expanse of territory known to some as the wild and woolly west; but is rapidly assuming a leadership in all things pertaining to advancement, progress and education throughout the world, and in accord with this, gentlemen, it occurs to me that the responsibilities thrown upon each and every member, because of this international prominence, are twofold, and that not only should our professional attitude be toward the highest of professional ideals, but that our moral and social obligations should in every way be above reproach and criticism, for but few of us often realize the true extent of the influence which we must wield, because of our opportunities and environments over a large proportion of the followers of our craft within a considerable radius of the field of our own activity; and how many look upon our actions as their guide, and upon us as their example, and to us for their counsel and encouragement.

As the profession of dentistry broadens, advances and progresses, so with equal significance increases the duties and responsibilities of dental societies; and while to them, together with the colleges, belongs the honor and credit of raising with phenomenal and marvelous rapidity the standing of the profession from the meager and humble walks of a trade to the affluence and dignity of a learned science, the effort must not yet become exhausted, for, and I regret to say it, we have not yet quite succeeded in proving beyond controversy such a status, and in acquiring from all collateral sciences the distinction and recognition which now seems but our just and earnest due.

And strange as it may seem our mother profession—medicine—that of which we are a part and specialty, seems among the last to accord to us our rightful and honest belongings, to take us by the hand with maternal respect and affection and proclaim to the world that we, while her offspring, are now deserving of equal standing and well and substantially fortified to hold our own in the domains of science. Such is surely our heritage.

Among the important doings of the profession to-day is the movement for the appointment of dentists in the army and navy, a movement infinitely humane and needful, and one that must ultimately be crowned with success, and which will do much to bring about such a distinction and recognition. It marks this as an important epoch of our professional history, and is of such significance to the profession and humanity as to warrant, and even demand, at almost any personal sacrifice, the combined and united efforts of every practicing dentist in this broad land, in the exercise of every available influence at his command. Such an effort will be felt and must result in success, and as such will add another laurel to the shrine of American dentistry.

Yet, gentlemen, while indulging in this brief and enthusiastic prospectus of what our society can and should aid in doing, I am by no means unmindful of that which we, young as we are, have already accomplished; nor could I in the exuberance of my pride refrain from making reference to some of the most notable strides in which we have been particularly interested, events which have not only made history for us, but for the profession.

The tenth anniversary of the Odontographic Society was celebrated by perhaps the largest clinic and gathering of dentists ever held in the west, with the exception of the Columbian Dental Congress, and will be by those whose good fortune it was to be in attendance long cherished as a most memorable occasion; and while I would not care to grow old too fast, I would that such interesting, wholesome and universally beneficial meetings could come oftener.

Since it has invariably proved that such gatherings were prolific of so much good to all, it seems to me that here in Chicago —the home of opportunity—much might be gained by a coöperation of the various societies in the matter of holding these meetings alternately, and at such regular periods as will, while not coming too often, occur at intervals sufficiently close to keep us in touch with each other, and apace with the strides of progress and advancement which will of necessity be the result of a natural evolution.

A further illustration of the spirit of progress so predominant in this body was made manifest by the origination of an organized movement for the establishing of "Free Dispensary Clinics," a charitable effort having for its specific aim the rendering of skillful dental services to the worthy poor. This appealed at once to all and brought forth the support of, and a hearty response from, a gratifyingly large proportion of our membership, many signifying their willingness to devote one and sometimes two hours a week to the cause; with the result that in a brief time some seven "dispensaries" were opened in various sections of the city under the auspices of the "Associated Bureau of Charities," to whom it appealed particularly strong; the above body at once granting space, etc., and furnishing the necessary supervision, that the purposes and usages may not be imposed upon.

The movement is now in the hands of a standing committee of which Dr. C. T. Gramm is chairman, and is being successfully conducted.

Think of the advantages thus thrust in the way of the poorer classes, many of whom would perhaps learn in no other way of even the very existence of dentists, and of the good that must accrue to them from the benefits of such attention; to the profession at large ultimately, from their education in the necessity for the care and preservation of the teeth and tissues of the mouth; and to our society for originating and fostering so philanthropic and progressive a movement!

Aside from this the Odontographic Society again took the ead in a movement of great and international importance, having for its purpose the compulsory examination of the mouths of the children in the public schools, by dentists appointed by the Boards of Education, or the required presentation of a certificate of examination from the family dentist; and has been for some time and is now, through a standing committee headed by Dr. C. E. Bentley, expending much effort and energy in an endeavor to bring about such an end, which will do much toward our aspirations with regard to the elevation and recognition of the profession, as the general information, data and statistics thus secured; the preservation of the hygienic condition of the mouth, and prevention of diseases thereto pertaining, and the consequent education of the laity, would be of inestimable value to the world at large.

This, gentlemen, is briefly a part of the work of this young but strong and hearty organization; and in surrendering the gavel to my esteemed successor, permit me to thank you for your cordial support and coöperation during my administration, and to assure you that that which I now relinquish has been one of the most pleasant duties of my life.

May the Odontographic Society ever grow and continue to do good.

REMOVAL OF THE GASSERIAN GANGLION FOR NEURALGIA OF THE FIFTH NERVE.*

By Dr. Carl Beck, Chicago, Ill.

PROFESSOR OF SURGERY, CHICAGO POSTGRADUATE SCHOOL; PROFESSOR SURGICAL PATHOLOGY, MEDICAL DEPARTMENT STATE UNIVERSITY AND CHICAGO COLLEGE OF DENTAL SURGERY.

With the introduction of specialties into the art of healing great progress has been made. We owe, in fact, all the accomplishments in science to such systematic specialization. But lest the specialty should become dangerously narrow, it becomes necessary that the branches of our science remain in contact and interchange; and, happily, this thought finds expression in journals as we find nowadays published, such as: From the Borderlines of Medicine, Surgery, etc., and others. We have joint meetings of societies in congresses, etc., all for the purpose of centralization.

Take dentistry, a specialty par excellence, it needs the contact with general medicine and surgery, as diseases of the teeth are often only an expression of general diseases and distant pathological changes which, if not recognized, may lead to entirely false treatment.

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*Read before the Chicago Dental Society.

One of the most interesting pathological conditions in this respect is the neuralgia of the fifth nerve. Nine times out of ten, the dentist will be the first man consulted, as the toothache is one of the most prominent symptoms, and though it is only an irradiated pain, it leads with admirable regularity to extraction of the teeth. Long after all the teeth are gone and pain still persists, the diagnosis is made that the nerve or nerves are the seat of pathological change, the teeth only the peripheral end into which it is projected.

This very interesting and comparatively common disease is amenable to different treatment. Many cases yield to medicinal treatment; many are cured by an etiologic treatment, like syphilis or rheumatism; but there are instances of this disease which resist any medicinal or hygienic treatment, and which are turned over to the surgeon to cure by operation if possible. I say if possible, for every surgeon of experience has occasionally a case which remains the same, or even gets worse, after operation. Not one, but many operations are devised, and these unfortunate patients have often had tried on them all the single methods, have had three or four, or even more, operations before they are cured. As a last resort the operation of removal of the ganglion is done.

I shall not stop to discuss the different surgical methods of treatment of neuralgia of the fifth nerve, as there are scores of them, but shall discuss only one, viz., the removal of the Gasserian ganglion for the cure of the disease, and that only by the temporo-cranial way.

The methods have developed gradually from the most simple to the most intricate. First the nerves were cut (neurotomy), then portions excised (neurectomy), then pulled out of their bony canals and twisted out (neurexeresis), and if this does not help, the centrum is cut, the nerves are divided close to their central origin, and inasmuch as there are some cases of poor results after this operation, perhaps some future genius may remove the centrum and succeed, or not, in coping with the dreadful pains which resist all narcotics.

On the whole, the removal of the Gasserian ganglion has been successful, and, though the published cases are still countable, the operation is by no means a rare one in the practice of a surgeon.

Let me recapitulate a few anatomical facts before we discuss the operation. The fifth nerve emerges from the brain with two roots, like any of the vertebræ nerves. The posterior root, consisting of about a hundred bundles of nerve fibers and stronger than the other, is first visible in the groove of the crus cerebelli ad pontem. Its fibers are sensitive. The anterior is thinner and covered by the posterior. It emerges from the gray nucleus of the fourth ventricle, and is first visible coming from the front portion of the pons varoli. Its fibers are motor. These two nerves join, and perforating the dura mater, their course leads toward a shallow depression in the petrosal portion of the temporal bone, called cavum Meckelii. There the posterior sensitive root develops into a ganglion, that is, its fibers spread and gangliohary cells and glia substance develop into a flat body of oblong shape, called the Gasserian ganglion. The motor fibers have no part in this formation. From the convex border of the ganglion three nerves emerge—the ophthalmic, the supramaxillary and the inframaxillary. Very important structures are in the immediate neighborhood—the carotis interna, meningea media, the sinus cavernosus. The nerves leave the cranial cavity by different openings—the fissura supra-orbitalis, the foramen rotundum and ovale, where the third branch is joined by the motor fibers of the anterior root.

As you see from the anatomical disposition, it must be the aim of the surgeon to remove the sensitive portion of the nerve and to leave the motor. This is very difficult, as they are close together and very deeply situated.

(1) The merit of the first attempt belongs to Rose, who in 1891 tried to remove the ganglion or to destroy it by the so-called *transmaxillary* method through the removal of the superior maxillary bone, a method which is all the more dangerous as we leave the cranial cavity in contact with the mouth cavity, full of germs and danger of infection.

Novaro has modified this method in still more brutal way. The work is difficult and unsatisfactory. The danger of laceration of large vessels is great.

(2) The pterygoid way, also first described by Rose and later by Andrews. Expose the foramen ovale by temporary resection of the zygomatic and coronoid process of the inferior maxillary bone. This is difficult and dangerous, though not opening into the mouth cavity. This method has had some success.

(3) The best way remains, the temporal method. Some surgeons who have chosen this route have not removed the ganglion, but only cut the nerve. Horsley, in 1890, pulled out the nerve from the brain substance. Hartley, in 1892, cut the second and third branch without removing the ganglion at first, but in later operations removing the same. About the same time as Hartley in America, F. Krause, of Altona, Germany, made his experiments with the removal of the ganglion and section of the nerves. Since that time a number of surgeons have tried the method of Hartley and Krause with slight modifications. According to von Beck's tabulation (1897), there were forty-one cases of intracranial resection of the ganglion, with six deaths and thirty-five *cures*, if we may say cures in the surgical sense of the word.

My own experience is derived from three cases, two of whom are cured. One died. This death was due to cancer propagated from the parotid gland into the brain. The operation was done as a palliative measure. The other two cases live and are perfectly well. One of these cases was referred to me by Dr. Talbot, a dental confrère, and the case was all the more interesting as the removal of the ganglion was his twelfth operation, his jaw and nerves outside having been removed before without success.

I used the somewhat modified Krause method. I did not try to save the cranium, but after making a large flap incision in the temporal region, I removed skull to the extent of an inch and a quarter or more in radius. Then I separated bluntly the dura mater from the bone and held it back with a wide spatule, so that I could look into the temporal cavity. It is by no means an easy task to control the hemorrhage at this stage of operation, and is only made possible by advancing slowly with plugging the space between the dura and bone. A compression of the brain is indispensable and only by good pressure the field interesting us will finally be made visible. At the depth of about an inch, we endeavor to cut nerves and extract them; then we cut out the ganglion, which, as you see in this specimen is by no means a large structure. The brain expands quickly and fills out the cavity again, which is closed without drainage.

I should have liked to have shown you the patients, but they are far from Chicago and I could not induce them to come. The result of the operations, if the one already lost from cancer is excepted, is excellent. I can recommend the method as a good one even for very advanced cases. The neuralgic pain usually stops at once and forever. The sequelæ which have been described by some operators as paralysis of eye muscles and muscles of the face, and tropho-neurotic changes have not been observed in mine.

PRESIDENT'S ADDRESS TO THE ST. LOUIS DENTAL SOCIETY, FEBRUARY 6, 1900.

BY W. F. LAWRENZ, D. D. S., ST. LOUIS, MO.

Before reading my address, I desire to extend my heartiest appreciation to the members in electing me as presiding officer for the coming year. I am not unmindful of the fact that I am young in the ranks, and that is an especial reason why I should feel grateful. Moreover, I can assure you my best efforts will be yours. It is appropriate at this time to state that without the co-operation of the members your officers cannot hope to realize their full measure of success, so your assistance and counsel is earnestly requested that we may reap the benefits of a year of rousing good work.

In starting into the forty-fifth year of its existence the St. Louis Dental Society can well look with pride upon its record, one of the oldest organizations of its kind in this country, and it has made its mark in dental literature. The achievements of some of its members are monuments in dental history. The dental world will always know that from the work of the pioneer members of this society was evolved the first dental engine, the first modern improved dental chair, the first practical usage of gold crowns, and other valuable inventions.

There are many of its members, deceased and living, whose brilliant thoughts and scientific abilities are known and recognized throughout the length and breadth of dental knowledge. Many have held honored positions in the foremost dental associations of this country. Others on account of their prominence have been received and entertained by the leading dental bodies of the Old World.

That it has been a power in advancing dentistry as a profession is gleaned from the writings of its members in the early dental press.

That it has wielded great influence in the inauguration of dental associations is widely known.

So it is especially fitting to laud the older members in rearing and elevating such a fruitful body, but to the younger it must now look to preserve its standing and expand its power. Ever on the alert to advance dental progress, it now sees before it a fertile field of labor, and much glory. Labor, in bringing into its fold the many who are yet without, and the influence and good that it must continue to impart; glory, as it perceives the part it will play, and the added honor it will receive in managing and entertaining a world's dental congress, as pertains to the World's Fair to be held in our city in 1903.

The time is now ripe for renewed action to establish a permanent dental library and museum. This subject, originating in the Dental Club but allowed to lapse, should now be pushed and launched, at the earliest possible moment, by this society or its auxiliary, the Dental Club.

The inauguration of this splendid idea would be a grand pillar, supporting the high standard already set by this association. All should bend their utmost energies to bring about its completion.

We who are to-day enjoying the fruits of our society's past labors are urged by a sense of duty to show our appreciation and commemoration to those of our brethern who have gone before us. We need the opportunity to display their wonderful genius, to adorn the walls with their likenesses, to exhibit the quality of our early history; a permanent home for our society, where we can meet at all times for gathering and discussion and for the entertainment of our professional visitors; the means for additional knowledge and research, and opportunity to demonstrate to the public the progress, possibilities and the historical side of the dental profession.

In the establishment of this project, we have a grand opportunity to open up wider fields of usefulness.

We have awaiting us in our own community the resources to stock our museum with many interesting objects that would make a wonderful and inspiring exhibition. Many valuable contributions to the library are promised.

In entertaining the world's dental congress this addition to our society is almost imperative; the many duties that will be imposed upon us can here be discussed and developed. Here will be the ideal place to entertain our distinguished guests, and most especially to point to them with pride our society's history and its contribution to the scientific advancement of our profession, thereby spreading its fame and giving it its just recognition. Oh! what a glorious tribute, showing our appreciation of the broad and substantial foundation laid by our forefathers.

Let us hasten to avail ourselves of this opportunity, and, by so doing, rear a grand and appropriate monument to the present St. Louis Dental Society.

This association has been largely instrumental in giving us our present State dental law, which stands second to none. One of our members, an active worker on the board, has our interests constantly in mind. This board has performed a grand work, but must be upheld and encouraged by us at all times, and given not only our moral support but our material and financial aid as well. Let us keep in close touch with them, and give them any assistance they may demand at our hands.

I would suggest that each member be ever on the alert to add to our society desirable candidates. Would it not be wise to extend a monthly invitation to the senior classes of our dental colleges? As the parent rears the child, so must the society mold the young man to an emulation of high ideals and lofty ambitions.

This gives in brief outline a few ideas which seem practical of solution.

An interesting and instructive program is promised us, which should awaken a deeper interest and call out a full attendance at every meeting. Trusting all will assist in making this a banner year, I will conclude with thanks for your kindly consideration.

DENTISTRY IN JAPAN.

By Louis Ottofy, D. D. S., Yokohama.

My first interest in Japan was aroused in some matters I read regarding the country and its people in 1892, and I looked forward with many pleasant anticipations as to what that country would exhibit at the International Exposition at Chicago in 1893. It is needless to say that I studied the exhibits of Japan governmental and private, with the greatest of interest. This was followed by an extensive reading of the history, customs etc., of the country, and when the China-Japan war broke out, it was no surprise to me that the smaller and less populous country was victorious. I continued my observations, and in 1897 decided to come to Japan, under the partial impression that in that country the opportunities were probably ripe for the introduction of many of the modern improvements, and for the planting of the progress made in dentistry in the West. With this object in view, when in the spring of 1898 I made the announcement to my friends that I expected to leave for Japan, to practice dentistry and to engage in educational work, I received from a number of dental societies testimonials and credentials, which have placed me under everlasting obligation to the many whom I must forever number among my life-long friends. And to them it is but proper that I should give an account of my experience in Japan and of the prospects of dentistry in the future.

Just before sailing, in June, 1898, I wrote for THE DENTAL REVIEW* an article, which the editor, with the best of intentions, I have no doubt, but unwisely, suppressed. Unfortunately I have no copy of it, but I am of the opinion that if this communication is published, the article referred could appropriately precede it. It was written to show that my pre-Japanese investigation of the subject had been thorough and did not make upon me the impression, which so many held who were anxious to go to Japan and who wrote to me to be sure and send for them when the "school is established," or to let them know "of any good opening," etc. My observation led me to know something of the Japanese character, and I surmise what I then said, and do not now remember, will not be much at variance with what I do now say at the end of a year and half of residence and unceasing study of the situation.

OPPORTUNITIES FOR FOREIGNERS.

The Japanese do not employ foreign dentists. The people are confident and satisfied that there are none superior to native dentists. On the other hand, foreigners do employ Japanese, on the ground that their services are much cheaper, and, in the opinion of some, equally as good. Inasmuch as there are less than

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*This paper in some unforeseen manner was lost during a house-cleaning in the editor's *sanctum* about one year ago. As it was largely speculative and not strictly a professional paper its publication was deferred until too late, which we sincerely regret.

5,000 foreigners (always excluding Chinese [who are also foreigners] when speaking of foreigners) in all of Japan, the field of the foreign dentist will be found to be limited. It is just to add that there is always a floating population and a certain number of travelers who of necessity must seek dental services while in Japan or for that matter anywhere else. The permanent foreign population resides principally in Tokio, Yokohama, Kobe and Nagasaki. Tokio is within fifty-five minutes' ride of Yokohama, has no foreign dentist and some of its foreign population comes to Yokohama for dental services.

At the present time three dentists are located in Yokohama to cater to a population of less than 1,500. Of these three, one has been here over twelve years, is a good operator and is located in an old-established practice, and does a business that—well, would be unimportant in a good sized village in the States. The other hangs on by his eyelashes only, and your humble servant has not accumulated any great wealth and never will in Yokohama. In Kobe the situation might be much brighter were it not for the fact that in reality it is much darker. There are two men there; one being connected with one of the Yokohama men, who is wise in keeping the field covered so no one else will locate, while the other has not enough to do to make a living and hence makes trips to Korea, to keep things moving along. Since I came out, one has settled at Nagasaki, who in desperation to live has "cut the prices," and now has the knife close to the jugular vein. The funeral of his professional career in Japan may be looked for at any time. When one adds to this the fact that these operators are isolated, deprived of all touch with the profession, that the professional etiquette requires seclusion, solitude and somnolence, those who want so eagerly to locate in beautiful Japan should rather pity than envy these expatriated dental gravestones. Since I have been here I have had the pleasure of the call of several American dentists, who were looking for locations, and while I have strenuously urged them to stay and keep us company, they all seem to move on, looking rather for dollars than a good climate, fine scenery, gorgeous temples or Japanese beauties. I can therefore briefly, through the columns of the Review, advise those whose longing eyes are turned toward the land of the rising sun, to seek the land of any other sun. The revised treaties between Japan and the foreign powers came into effect on July 17, 1899, and the result was variously predicted, some claiming that a large influx of foreign residents and capital may be looked for, while others held that an efflux of the population would be the result. Neither has been correct. The probabilities now are that a slight influx of capital and a slight efflux of population will be the eventual result. In either case the prospects for foreigners will be less and less roseate.

THE NATIVE DENTIST.

It has been a source of great pleasure to me to have had the good fortune to make the acquaintance of many of the native dentists. I have found them universally respectful and courteous, many of them sincerely desirous of progress and advance. Indeed, I have been astonished at many of the accomplishments they possess, and had I not been compelled in some cases to converse with them through an interpreter, I could have learned even more of their methods and abilities. I am certain that for some of them I shall always feel and express the highest admiration. As a whole, I should liken the profession to the occupant of a hut which is but a short distance from the electric current and illuminating gas, but who, having discarded the illuminating power of the tallow, has accepted the coal oil lamp instead, when all the more powerful illuminants were within his grasp. By and by even these things will improve.

DENTAL EDUCATION.

I have made every reasonable effort toward the establishment of a dental department in the University, and for a brief period was under the impression that some good results may possibly follow. I have been constantly under the impression that some undercurrent existed, the source of which I could not fathom. It is needless and impossible in a paper of this kind to go into the racial conditions in the far East. Suffice it to say at this point, that there is nothing whatsoever in common between the Japanese race and the white man, not more than there is between the North American Indian and the white man, and less than between the Negro and white man. The motto of the future must and will be, "Japan for the Japanese," and there is no unjust sentiment in that motto. Japan will draw on all the world and on all the ages for its progress, beyond that the peoples and the countries outside of Japan are of no interest. Briefly, then, when I learned from an educated, upright, able, well-known gentleman that the president of the Imperial University of Tokio, though a graduate of Cambridge, is fanatically anti-foreign, I dropped all further interest in the matter. What "anti-foreign" really means is beyond the comprehension of those who have not lived for some little time in Japan. Japan will eventually have her dental educational system, but without the aid of any foreigners. It has the right and chooses to gain what information it can and pays the stipulated compensation for it to foreigners. One or two men will soon visit the United States to study dental education, bring the fruit to Japan, and the next generation will reap the benefit of that for which Americans and others have given their lives in the profession of dentistry.

HISTORY OF DENTISTRY.

It has been a source of gratification to me to gather the material for a "History of Dentistry in Japan." In this work I have been aided by a number of Japanese dentists, and I have read in such languages with which I am familiar, many available works bearing upon this subject, and in this matter I am now sufficiently under way to make satisfactory progress, with the translation of such parts of authorities as are germane.

I regret that I cannot give a more favorable or glowing account of the dental situation in this Empire; but, in violating the Eastern custom of silence on topics which cannot be presented in a favorable light, I feel it obligatory on myself to state the facts without prejudice or favor, and only as I find them. This paper, in connection with the one read before the Chicago Dental Society in March, 1899, and published in THE DENTAL REVIEW, April, 1899, practically covers all that might interest a foreign reader. In closing, I may add that the American dental graduates in Japan have organized an "American Dental Society," and that Japan also has been organized to be represented at the Dental Congress in Paris. Personally my residence here has led me to the study of the etiology of erosion, and I trust in time to conclude this part of my work in a manner which will fully justify the temporary sacrifices which I feel one must make in living in the East. For the student of almost any topic connected with dentistry Japan offers an immense field, but I do not as yet possess the liberty and freedom which such undertakings require.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held December 5, 1899, with the President, Dr. Garrett Newkirk, in the chair.

Dr. Carl Beck read a paper entitled, "The Removal of the Gasserian Ganglion in Neuralgia of the Fifth Nerve."

Alexander Hugh Ferguson, M. D., read a paper on "Operations for Cleft Palate, and a New Urano-Staphylorraphy." A synopsis follows: *a.* Early history of staphylorrhaphy and uranoplasty. *b.* Brief sketches of the different methods, such as those used by Warren, Ronx, Sir William Ferguson, Agnew, Garretson, Langenbeck, Rose, Davies-Colley, Brophy, Billroth, Kraske, Wolff and others. *c.* A new urano-staphylorrhaphy, in which no tissue is removed, broad raw surface brought together, tension relieved and sepsis prevented. *d.* Suitable and unsuitable cases for the operation primarily. *e.* The value of crowding of a muco-periosteal flap toward the center, by means of a gauze pack, as a preliminary step to closing the cleft in the hard and soft palate. *f.* The manner of dealing with the premaxilla and the employment of supramaxillary osteotomy in certain cases.

The discussion was opened by Dr. TRUMAN W. BROPHY, who said: I was deeply interested in Dr. Beck's paper, because he has shown us that this operation, involving the opening of the cranial cavity and the removal of the Gasserian ganglion, may be regarded as one of the fixed operations in surgery, and one which will greatly relieve the sufferers and give them benefits which cannot be realized in any other way. Dr. Beck, or any one attempting an operation of this character, would consider every possible means at our command for alleviating pain before resorting to this procedure, and if after every resource had been exhausted, this operation would be performed as a last resort.

Professor Andrews, a great many years ago, removed the Gasserian ganglion in two cases. I did not have the opportunity of seeing the operation, but I believe one was a success and the other ended fatally. It is possible, as we all know, that in many cases we can secure immunity from neuralgic pains of a very severe type by removing branches of the fifth nerve, the first, second, or third, as the case may be, and often after such removal there will not be a recurrence of the neuralgia for a long period of time, if at all. It is to be assumed that before removing the ganglion itself, these branches be removed which seem to be involved, as that procedure would be followed with very little or no danger of losing the patient. I approve, however, of removing the ganglion in cases where it is impossible to secure favorable results otherwise. It has not been my province to make this operation, although I would not hesitate to do so if the existing conditions seemed to call for it, and after exhausting all other means of effecting a cure. I wish to congratulate Dr. Beck on his researches in surgery, not only in this, but in other directions. His daring methods, his surgical courage, so to speak, of undertaking and successfully accomplishing anything which appeals to him, are remarkable.

I am delighted to have had the opportunity of listening to Dr. Ferguson's paper, and while he was reading it something of the early history of operations on the palate came to my mind. So far as my own observations are concerned, I have never seen but two operations on the palate performed by other operators, and I am very sorry to say that both were failures. One was performed in Philadelphia by Dr. J. Ewing Mears, who invented a mouth-gag, with which the doctor is acquainted, and the other was performed by the late Prof. Charles T. Parkes, of Chicago. In both cases the operation was made with the patient conscious, no anesthetic being employed.

The operation which the doctor has so clearly described to you is certainly deserving of a place in surgery of the palate. There are cases that come to us that baffle our judgment, and there are scarcely any two cases alike, and the man devoid of ingenuity will certainly not have the success that he would have if he could devise means suitable to the ends.

The cases which the doctor speaks of here it seems to me could be operated upon in just the manner which he has described. I really do not, however, see any special advantage in that operation over the carrying at once into approximation of the soft parts as described by the crowding operation. If the doctor will permit me to make a statement, I would say that I scarcely see any good reason why, after these parts had been crowded and approximated, they should not be at once sutured and united. I do not think that I could more clearly present my views on the first operation, as described in the four drawings, than to quote

Dr. Ferguson's words when describing the operation of transfixing the bones that I devised. I have not had any experience with this procedure, and consequently could not discuss it except from a theoretical standpoint, and it is hardly proper to discuss a question from that standpoint to any great extent when it involves a surgical procedure. We may theorize, but that theory must be put into practice and then we can discuss the results. To attempt to discuss that phase of uranoplasty would, I think, be rather unfair, to say the least. If, however, I were to discuss the subject from a theoretical standpoint, I would say that we have here a great deal of free surface. We have in the first place a flap that is turned inward, and I thought at the time, when the doctor described it, that a case with a small opening could be operated upon very nicely in that way. Having made the flap, reversed it and approximated it, with a view of closing the small opening, we have done all that is desired. We now have a broad space between the edges of mucous membrane, as the bone is partially denuded and the soft parts are moved across so as to approximate. Proceeding in this manner enables you to bring it across by the packing. Speaking from a theoretical standpoint, based somewhat on practical experience, I scarcely see why this should not be done all the way through, forcing the parts together and approximating them without making this internal flap.

I most heartily approve of this method of adjusting the eminence of the long portion of the intermaxillary bones. In these cases of cleft palate, so frequently attended by hare-lip, we find that the deficiency in about ninety per cent of cases is on the left side, and, judging from my experience, it is a rarity to see a hare-lip on the right side except in double hare-lip. The carrying over of this long portion of the bone, bringing it down and approximating it with the shorter, freshening the edges and thus procuring union, is a procedure that I most heartily approve of. One of my patients is still wearing wire sutures that were placed to hold the portion of bone down. It was rather a rare case of hare-lip on the left side with an opening through the anterior palate only. The alveolar process only was divided and the opening does not extend backward into the nasal cavity very much. The hard palate and the velum were perfect. The portion of the bone on the right side was very prominent; the child's nose was diverted to the right side about two-thirds more than its normal distance and turned up. The method of procedure was to force the prominent bone backward and approximate it with the opposite side, wiring the parts together, thus straightening the nose. The next step is to close the lip, and as to that we are almost assured of a good result.

The method described of bringing down the intermaxillary bones is in accordance with my practice, but I have not had the instruments used by Dr. Ferguson. I have used a knife and succeeded fairly well. I have not much fear of infection following; in fact, infection is a rare occurrence if we take the precaution which the doctor has mentioned. True, the mouth is a focus of infection, but we must wash the nasal cavity and have all the surroundings as nearly aseptic as possible, when we may feel comparatively secure from infection. One case of infection did occur with me a few weeks ago, and when I noticed it I used bichloride of mercury, one to fifteen hundred, freely and succeeded in stopping the destruction of tissue very promptly. A little hole was left, however, which was readily closed up.

Dr. Ferguson has mentioned that by the transfixing of the bones the arch might be made too high. My experience has been quite the reverse. As to a possible stenosis or a closure of the nasal openings, the nasal cavity is not disturbed at all. As to the teeth, it has been a matter of great surprise to see what really happens to them. The teeth are frequently disturbed and some of them sometimes lost, but I regard that as of very little consequence. When the second teeth come in they do so in a normal position. The teeth in these cases, when operations are made early, are embedded in the jaws, no alveolar processes having formed as yet. These are made to support the teeth, and when the teeth begin to emerge from the bone the processes begin to form, and as the tooth comes down, the alveolar process forms around it, the jaw developing and spreading out so that the teeth are usually in the normal position. Those of you who, at Niagara Falls, examined the teeth of the little child I operated upon at the age of ten days, will remember that the teeth were perfect and in good shape. This child was ten years old when exhibited at Niagara.

The reason why the nasal cavity is not disturbed is because the incisions are made just above the palatal plate, leaving the nasal cavity just as it was before.

Dr. Gilmer: Dr. Beck in his opening remarks spoke of the benefits which might accrue to the dentist and to the medical practitioner from such meetings as we are having to-night. I heartily agree with him in this, and wish that we might more frequently have the opportunity to exchange thoughts and discuss subjects which are of mutual interest. The subjects presented by Drs. Beck and Ferguson are those which equally interest the dentist and the physician, and we are indebted to these gentlemen for the able and concise manner in which they have presented them.

Tic douloureux is one of the most distressing conditions we are called upon to treat, and I am not surprised when the patient says, "I am willing to take any chance for a cure, as life under the circumstances is not worth living."

It appears to me from my reading that there is a tendency setting in against the removal of the ganglion for the cure of neuralgia, except in the severest cases. Dana tells us that if the case is not over five years standing he thinks that he cures quite as many patients by medication as are cured by removal of ganglion or cutting the nerve. His treatment consists of massive doses of strychnia sulphate, putting the patient to bed, using no special feeding and no massage.

The removal of the ganglion is quite a formidable operation, as is clearly shown by the mortality, twenty-two per cent. This being true, together with the fact even with the removal of the ganglion, permanency of cure is by no means assured, as recently two surgeons of this city have told me of cases in which the pain had returned in a few years after the operation.

It may be possible that the cause of the trouble is at the outset central, but there are indications which would lead us to believe that it is often, first, at least, peripheral. If it is, and the operation for resection has been done sufficiently early, before the neuritis has extended to the brain, we may expect a reasonable number of permanent cures from the less formidable operation, and in all cases a greater or less period of immunity from pain. I have never removed the ganglion, but have made sections and resections of the several branches of the fifth for the cure of neuralgia, in a number of instances, covering a period of twelve years. In a majority of these cases the pain has returned in from three months to three years time, but in several instances there has been no return of the pain in from six to ten years. In those cases where there has been no return of the pain I take it that the seat of the disease was peripheral. I am strongly of the opinion that the most formidable operation should be the last resort, and I am quite sure that Dr. Beck is in accord with this idea. If the pain is located in one branch of the fifth only, then it is quite probable that the cause is peripheral, and resection is indicated. If the pain, however, is in more than one branch, or in all three, then in all probability the cause is central, and the removal of the ganglion is indicated. But in either case internal medication should precede, and the operation only used when this has failed.

I remember one patient who had a severe facial neuralgia in the second branch, the pain being located in the cheek and side of the nose; by simple section of the nerve where it passed out of the infraorbital foramen the pain was relieved for a period of two years, recurring at the end of that time; at the same time there was pain in the third branch as well. I referred this patient to Dr. Andrews for the removal of the ganglion. He did not remove it, however, but made resection of these branches. In about eighteen months the pain recurred, indicating that it was central. It was about ten years since I made the first operations spoken of. Since the return of the pain after the second operation he has been using, as occasion demands, aconitine, with good results. By using this drug, he has generally immunity from pain for several months at a time. I am of the opinion that the operation indicated by Dr. Beck is the one best suited for the removal of the ganglia. Much more might be said on the subject but the hour grows late and in conclusion I wish to compliment the essayist on the excellence of his paper.

Dr. Gilmer's discussion on Dr. Ferguson's paper. I had hoped that Dr. Ferguson would have something to say about which cases are operable and which cases, if any, are not operable, making a clear distinction between the two. In all cases where the child has reached the age of eight or nine years, unless there is an abundance of tissue, phonation and deglutition is not improved by operation to that degree that it is by a well constructed artificial velum. I have seen these operations on older children and have done them myself, followed by little or no improvements in speech from lack of tissue and because the muscles have never had use, therefore they have become atrophied;

and not only this, the muscles have not had training and it is difficult to get the child to speak plainly, even if the velum be surgically closed.

Dr. Ferguson has shown us a beautiful operation, and if the real operation presents as perfect an appearance as do the pictures it is ideal. The doctor is a clever surgeon and I have no doubt but his operation is most excellent. It seems to me that as a rule the simpler we can make the operation, if it is effective, the more likely we are to succeed.

Dr. Ferguson tells us that he does not change the arch, that is, that he does not attempt to narrow the arch by changing the relations of the two halves of the jaw to each other. In some cases we find where the cleft is very wide, that the buccal sides of the lateral halves of the arch are far outside of where they belong. In such cases it appears to me that they should be made to approximate each other by some means.

I have recently tried a mechanical method for the purpose of placing the bony parts in their normal relation to each other. In this case the cleft was over three-quarters of an inch in breadth at its narrowest part. Remembering what Garretson had said about appliances for the closure of the hard palate, I made use of the following on the jaw of a child about two months old; the appliance being made for me by Dr. Haskins. I first secured an impression of the jaw from which I made a cast. From this was formed two silver plates extending well up on the buccal sides of the jaw and one on the palate. The two plates were united by a heavy piece of pure silver bent in the shape of a letter U. On each side of the plate high up were soldered two projections. Through these and the plate holes were drilled. Into these holes silver pins were fitted of sufficient length to penetrate the soft tissues and a short distance into the bone, but not far enough to injure the germs of the teeth. A forceps was made with depressions in the blades which fitted the buttons soldered to the plates. The handles of the forceps were made to close or open by a screw. The patient was anesthetized, the plate put in place and the pins inserted and fastened. The forceps were now put into position and the blades closed by the screws on the handle. The soft silver was bent as the two sides of the plates approximated each other, and when the pressure was removed, there being no spring in the bar, it held the parts firmly together. We closed the cleft about one-third at this operation and the plate remained firmly in place. At the end of a week the child was again anesthetized and additional pressure was applied, when the U shaped bar buckled down upon the vomer and it could not be utilized further, but the space between the two halves of the jaw was so much reduced that the operation of closure by a modification of the Brophy operation was made practicable.

The next suitable case which presents I shall employ this same appliance, but instead of making the bar U shaped I will make it thus 8, soldering the two ends to the plate; then when the parts are approximated the bar will open instead of closing, and there will be no tendency toward buckling. With this appliance I believe I will be able to close perfectly narrow clefts in the jaws of very young children at one operation.

I have recently seen the result of the Davies-Colly operation by Dr. McArthur of Chicago, which was perfectly successful, and the indications are that it is admirable for some cases. It seems to me that no one operation is best for all cases, but that each demands special study and the application of the best method for that individual case. In the Davies-Colly method as I understand it gives as does Dr. Ferguson's operation a mucous surface for the floor of the nose as well as a mucous surface for the palate side. Two flaps are raised on each side of the cleft. These are turned over and toward each other and stitched together. A mucoperiosteal flap is now taken from the side of palate and brought over and made to cover the raw surface of the previous flaps, where it is secured by stitching. Again I wish to compliment the essayist and thank him for his instructive paper.

Dr. W. H. G. LOGAN: I have had a little personal experience, supplemented with five years of observation with Dr. Brophy, and wish to say something of the plan just spoken of by Dr. Gilmer. He told us of a sort of spring with a silver plate, with pins in them attached to either side of the maxillary bone on their buccal surface, to force the edges of the cleft gradually together. What is the use of a silver plate with a spring in the center to force these edges together, when you can use uranoplastic forceps, like those I made and employed in 1897, to create your force and get direct pressure along the buccal surface of both maxillaries at one time, thus carrying the parts together at once, and fasten them there until granulation takes place? If you repeat the operation in six days according to the procedure of which the doctor spoke, you simply increase the surgical shock; and why produce such surgical shock, when without question, it can be avoided? When the distance is so great at first between the edges of the cleft, why not carry it as far as is consistent with the case, and hold it there by a positive means for from six to eight weeks? Then if you find that you can bring the parts more closely together, consistently, do so, but never reoperate or reanesthetize the patient in five or six days; the danger is too great. There is no operation in which the bones have come together in their entire length; it is usually at the anterior part that you have them in contact, and not at the posterior, as is frequently claimed in many cases.

If you perform the operation which Dr. Ferguson describes, you do not get the beautiful and happy results of elongation of the surgical velum, which is produced by forcing the tuberosities more nearly together, and which is obtained by Dr. Brophy's procedure, or by the operation which I have performed and described.

If you force the tuberosities together you get a palate of greater length, which will close off the naso-pharyngeal opening during speech. If you leave them apart you do not elongate the palate, and do not, therefore, get the perfect result which is obtained by these procedures. Not only do you fail to lengthen the palate, but in reality shorten it, and so lessen its perfect function. When you have a case with a great deal of the palatal portion of both maxillary bones, then you are able to get a more perfect result. In such a case, work on the palatal portions altogether, and do not pass any wires or make incisions along the buccal surface, which will interrupt the germs of the forming teeth. Place two wires through the soft and hard palate, midway between the edges of the cleft and the maxillary ridge; two lead plates are then passed over the wires to keep the sutures from cutting out. So far, you will notice that practically no hemorrhage has been produced, for only four small openings by the wire have been made through the soft and hard palate. You now take the uranoplastic forceps and place them on the buccal surfaces, well up under the cheek fold, creating pressure on same with one hand, and causing tension upon the silver wires with the other hand. This, you will see, will result in bringing the palatal plates of the maxillary bones together on a horizontal line, and cause the least possible constriction to the maxillary ridges, thus doing away with the high vault to the palate which follows the other procedures, and it further has the advantage of not destroying or disturbing the germs of the forming teeth. Where you have little or no palatal portions, however, this procedure should not be followed, but instead the Brophy operation, where two wires are passed through the buccal surface, one in front and the other behind the malar process, and both above the hard palate. In other words, I would have you understand that where we have a considerable amount of palatal portion on each separated maxillary, I would not deem it wise to follow the Brophy procedure, but instead the one just described, where the wires pass through the hard palate. Where you find little or no palatal portions, then I believe that the best results are those derived from the Brophy operation.

In regard to the Brophy operation for staphylorrhaphy, where the doctor passes the wires through the soft tissue and relieves the tension from the median line by the employment of lead plates, it is indeed a beautiful one, for with this method you will have no tension upon the coaptation sutures, but when you rely upon silk sutures or horsehair, the result too frequently is little or no granulation throughout the length of the entire cleft.

When you follow the procedure laid down by Dr. Ferguson, I do not doubt that he gets the perfect result which he speaks of; but in the hands of the ordinary operator, failure I fear would follow in almost every case, not because of the incorrect principles, but because of the technique of his procedure, which is indeed beautiful, and I believe in his hands that the result is good; but for a beginner why not take an easier method, like the one just spoken of, and get as positive a result, if not more so? With a double row of sutures as Dr. Ferguson has described, might you not have to contend with secretions, which would find their way between the flaps and set up an irritation, which in its result would be anything but pleasant? Such a condition I believe would be more detrimental than the one we have in the old operation, where the droppings from the nose on the upper surface at the line of union lodge, for in this case you can with a syringe wash through the nasal passage daily, thereby carrying away all deposits and secretions. He spoke of the advantage of horsehair in the palate over that of silver wire, as being more pleasant to the tongue, but I would say that silver wire is an advantage over horsehair, as it keeps the tongue away from the line of union, and does not allow the tongue to create a pressure which would force the edges apart.

As to cutting the tensor palati and levator palati muscles, you diminish greatly the function of the palate; they should not be interrupted, as such an operation would not preserve the true function of the palate. If these muscles are to be interrupted in their work, put a button through them, and by placing pressure upon the same you will do away with their causing tension upon the palate as long as it is desired, but never separate them in their entirety, because clinical history demonstrates that such a procedure impairs the full functional activity of the palate.

Dr. J. E. KEEFE : Dr. Beck's paper was particularly interesting to me because I had the opportunity recently of witnessing two operations for the removal of the Gasserian ganglion by Dr. J. B. Murphy, of this city.

I read in this month's *Lancet* an article by Dr. Bennett, of St. George's Hospital, London, advocating the injection of osmic acid for destroying nerves. He claims by so doing he avoided removing the Gasserian ganglion. He did not claim this method to be a new one, but cited a number of cases in which he had operated successfully, dating back several years.

Dr. Gilmer stated that the mortality when this operation is performed is about twenty-two per cent. Why such a mortality? Is it due to the seriousness of the operation necessary to reach the ganglion ? Or is it from infection ? Or both causes combined ?

After reading this article by Dr Bennett, it occurred to me that it might be a good idea to inject the osmic acid into the ganglion, instead of removing it.

Dr. G. W. COOK: I have seen Dr. Ferguson's operation performed once and saw another case subsequently, and in both cases the result showed fully as well as in the drawings, and in some respects even better. I have done no work in this line, but have, from personal observation, every reason to believe that Dr. Ferguson has accomplished a great deal.

Dr. T. W. BROPHY: In regard to clefts in adults, or wide ones in children, making the transfixion of pins less feasible, by the use of an instrument I have devised for the purpose, a curved bistoury, I elevate the soft parts of the palate, denude the bone on either side as far back as the palate extends, and then bring it down and unite in the middle, by the method which I use, the two sides and maintain the closure. It is a matter of great importance not to divide the tensor palati muscle, as once divided it is like a rope over a beam; once cut it never unites again. The muscle loses its function and the function of the palate is impaired. Prof. Halstead, of Johns Hopkins University, conducted some experiments showing that silver in contact with tissues acted as a germicide. By means of the silver wire and the lead plates, we have little tension and we put the parts to rest. This is of vital importance as it prevents the tearing out of the sutures.

Dr. Carl Beck (closing the discussion): I perfectly agree with Dr. Gilmer's statement that the operation should not be attempted unless everything else has failed, and I have so stated in my paper. I would not operate in any case unless an excision of the nerves had been attempted and proved unsuccessful. It must also be understood that we should not make an early operation, as this operation is by no means a panacea for every neuralgic pain. If we wait awhile, before reporting our cases as cured, we certainly have a bad showing. A case four and one-half years old can be reported as cured; whereas, one of one year's standing is only a temporary relief and we cannot judge of the final outcome until some time has passed.

This operation is a last resort, and must be regarded as such only. Nevertheless, it must be attempted even at the risk of killing the patient, as life is not worth living if a person is in constant pain. There is no tendency to discard the operation. I have tried the injection of strychnine, but like many other injections it affords only a temporary relief. Alcohol, formalin and osmic acid have been tried; in some cases they may do well and in some not.

As to the mortality, it is due not to the excision of the ganglion, because that is a perfectly harmless surgical procedure, if we once have it in view, but to the laceration of important structures in the neighborhood, lacerations of arteries and laceration of the brain. We must compress the brain, and it can be compressed considerably. Some die from shock and some from hemorrhage. If we release compression, the brain becomes hyperemic, and if there is any tendency to hemorrhage it will kill the patient by destruction of brain structure or secondary hemorrhage. The injection of osmic acid into the ganglion would be rather difficult, even if it were of value. Alcohol is just as good. Injection would be a much more difficult procedure than excision. Injection into the neighborhood of the nerve might do some good, as it will harden the tissues, destroying the nerve and the tissues around it. Injection, however, is always difficult, and I am glad when I can see it, get hold of it, and excise it.

Dr. ALEXANDER H. FERGUSON (closing the discussion): The remark made by Dr. Brophy, with regard to neuralgia, that sometimes the removal of the inferior dental or infra-orbital will effect a cure, reminds me of a case I operated on seven years ago and reported last year. I recommended the removal of the Gasserian ganglion after everything else had been tried, but the patient would not consent to it. She consented to removal of the nerve and I extirpated the inferior dental nerve and she is well yet. This shows that the pain to the other nerve is a radiating pain, so that I am inclined to believe that a number of operations have been performed upon patients where it would only have been necessary to remove the nerve.

In looking over the literature on the subject, I find a most ingenious procedure recommended by Dr. Brophy, that is, the screwing out of the nerve. Tearing and pulling on a nerve does good on the same principle as stretching the sciatic nerve in sciatica. I have removed the Gasserian ganglion three times successfully. The oldest case is of two and one-half years' standing, so that I do not know whether the pain will recur or not. In one case the ganglion was supposed to have been removed by a homeopathic surgeon in Cleveland, and I saw extracts in the paper showing his picture and the patient's tooth. The woman had neuralgia again before she left the hospital. She was brought to me and I removed the ganglion two and one-half years ago.

We can, I think, readily control the hemorrhage if we do not try to do too much at once. After making the incision as he does, and cutting down to the base of the brain, pack firmly and if there is any hemorrhage pack some more. Separate the dura by packing and not by compression. At the foramen ovale you meet with the most hemorrhage, but pack for five minutes and after that instead of tearing, take a sharp knife and make a clean cut through the dura mater and then you can lift the ganglion out of its bed in its entirety. As to removing the bone, make four holes and with a wire saw cut the bone; then it can be put back and it will fit perfectly. I did that in the last case.

In regard to my operation it can be easily performed. I think I must have given Dr. Brophy the impression that the opening is made wider than by vivification, but it is not. Another gentleman supposed that a hematoma would form between the two flaps, but if you take the tension off the two flaps and pack the incision on the one side to that of the other, no hemorrhage can take place. Why not do the whole operation at once? I do when I can, but no one knows better than Dr. Brophy that sometimes the bony processes are sticking away in there and without any mucous membrane over them, thus not permitting the making of a flap, and then I crowd them over. It is true that sometimes they are very wide apart, and that in those cases you must perform an osteoplastic operation, as Dr. Brophy pointed out. There is no positive rule to follow, and each man must exercise his ingenuity in these cases; but I must say that I have not yet met a case which I have not mastered in some manner. Suitable cases are easily managed, and the others are infrequent.

Another point I wish to take up, as considerable stress has been placed upon it, and that is comparing a tendon to a rope over a beam. This is unscientific. We can separate the tendo-Achillis ever so far and the tendon grows in, the leg being as good as new. So it is here; you can cut that small tendon and it does not make a bit of difference. You can cut it and it will grow again, union taking place, and it is as good as new.

REMARKS ON BRITTLE PLATINUM.

Dr. C. N. Johnson: Although the hour is late, I must beg the indulgence of the society in order to call your attention briefly to the work which is being done by Dr. W. Booth Pearsall, of Dublin, Ireland, in the investigation of the causes for the frequent breakage of platinum pins in artificial teeth. Most of you are doubtless familiar with his recent paper upon the subject of "Brittle Platinum Pins," and I will not refer to it further than to say that it is Dr. Pearsall's opinion that the platinum wire used in artificial teeth is sometimes made brittle by certain processes of manufacture, and when this is true that the teeth drop away from the plate without appreciable pressure, and that the resultant fracture of the pins leaves a characteristic crystalline break which is widely different from that of tough platinum.

The publication of Dr. Pearsall's paper brought to him a very extensive correspondence on the subject, a copy of which he has been kind enough to send me for the benefit of those members of the society who care to examine it. What he is especially desirous of is to enlist the coöperation of the American profession in the study of this subject, and it is for this purpose that I venture to bring it before you to-night. If any members of the society have experienced difficulties of this sort with their artificial work, they will confer a favor by placing themselves in communication with Dr. Pearsall. They will also do well to read what he has written on the subject.

Chicago Dental Society.

A regular meeting was held in the Stewart Building, January 2, 1900, with the President, Dr. Garrett Newkirk, in the chair.

Dr. J. N. McDowell read a paper entitled, "Comparative Dental Anatomy; A Basic Principle for Orthodontists." See page 245.

Dr. B. J. Cigrand followed with a paper on "Methods which Avoid Display of Gold in Individual and Assembled Crowns." See page 165.

These two papers were then discussed jointly, and in the absence of Dr. C. S. Case, Dr. C. E. Bentley was asked to open the discussion on Dr. McDowell's paper.

Dr. Bentley:

Mr. President and Gentlemen: It is an imposition on the essayist, as well as on the ladies and gentlemen present, and certainly an injustice to me, to ask me to open the discussion on a paper that I have not read or heard until I came here this evening.

I have been very much interested in the subject matter of Dr. McDowell's paper, particularly in comparative dental anatomy and its application to methods in orthodontia. This is the only phase that I would care to discuss. I must compliment the essayist for going, as he has boldly and freely done, into the science of this matter to get at the foundation. I think it is a subject prolific of much research on the part of the dental profession, and a great deal has yet to be learned on that subject. I was particularly interested in the doctor's paper, as it referred by inuendo to the methods by which a man gets his tooth forms. He gave a preference for what is known as the concrescent theory. There is another theory that is not only talked about, but accepted, I believe, by scientists, and it is called the differential theory. Not many months ago I read a paper on this subject, treating it from the standpoint of evolution, in which I referred, at some length, to the concrescent theory. The first picture thrown upon the canvas was a picture of the dolphin, with conically-shaped teeth. It is the highest type of fish which typifies the cone. It has two hundred and forty teeth in its head. Owing to some evolutionary process, man has in some roundabout way gotten his tooth forms or dental formula from the fish, and the acceptance of that theory makes this thing possible; that there must have been a coalescence of these cones in order to give man the present tooth forms to-day. The question under discussion to-day between scientists is whether this formula was formed from coalescence or what is called the differential theory. The differential theory practically claims that where nature finds opportunity or necessity to irritate a part, it will throw out in time a corresponding permanent material and will fortify that part against constant irritation. The concrescent idea is that there is a coalescence of these cones, that they form the cusps of the teeth and from them we get the various forms of teeth in man.

The essayist gives his preference in favor of the concrescent theory, with which I wholly agree; but the preponderance of evidence among scientists on this subject, such men as Cope and Osborne, unquestionably proves beyond peradventure that the differential theory is the one that is more acceptable.

I believe, aside from what was said in the paper, that food is the greatest factor in the production of tooth forms. The fish uses its teeth for prehension and tearing its food. There was a time, geologists tell us, in the earth's history when there was so much carbon dioxide on the land that no animal could live out of water. It had to get its oxygen from the water. The earth was teeming with that sort of animal life with that class of dentures, as shown in picture No. 1. When the carbon dioxide commenced to rise; when we more nearly approached normal atmosphere, when animals commenced to live on land as well as on water, we had a different animal, the amphibian, whose tooth formula changed according to the food that the animal received. We next come upon another form of animal that is typified in the second picture shown in the drawings, the animal showing three cusps, one dominant and the other subordinate, that is, the trichondite. That is found in the animal that lives on land and in water. Then we find animals that live upon herbs after the atmosphere became clarified, and after life became possible in greater area. Other forms of teeth we find in higher animals, in the primates, in monkeys, and in man. This, in brief, is the scientific acceptation of the changes of forms of teeth that have sprung from the dolphin, which is the highest type of fish, up to man.

I was disappointed in that part of the paper in which the essayist failed to mention the possible cause of the development of the ramus. If you remember, the first picture shown on the canvas represented the cones at this point (indicating). The history of the development of the ramus has yet to be written in science. I have a theory of my own in reference to the development of the ramus. I believe that the coalescence of the innumerable cones that we speak of made the different forms of teeth, and we first find a different form in the trichondite, in the animal that lives in water and on land. If there is a coalescence of these teeth, there is an immense power behind the cones that develop the various tooth forms, and what I have asserted over my name is that the development of the ramus was the primary cause of the development of tooth forms necessary for the mastication of food. The ramus, bending as it does, will cause a corresponding coalescence of the tooth cones and will also form different tooth forms. I have never seen this mentioned anywhere. It has attracted very little attention outside of being purely a theory. We notice in the lower jaw in animals, where the tooth form develops from the cone, the trichondite, there is a corresponding tendency of the jaw at the angle. We observe, too, that as we get beyond the higher order of animals there is a greater form of ramus.

In reference to the supernumerary teeth, I fully coincide with the essayist, namely, that it is nothing more nor less than a reversion to primitive types; that the cone was unaccounted for in the production of the various tooth forms, was lost and made itself manifest in being lost.

I should like to talk a little longer, but I do not care to take up any more of your time, and I thank you very much for the opportunity of speaking.

Dr. J. H. Prothero: The essayist (Dr. Cigrand) has covered so much ground that it will be impossible for me to touch on all of the points brought out in his paper, and I shall not attempt to do so but will confine myself to what I consider the most important ones.

He kindly furnished me with a copy of his paper several days ago, and after looking through it I decided that but little criticism of an unfavorable nature could be offered. He has given us a clear and accurate description of the principal classes of porcelain teeth that are furnished us to-day by the manufacturers, as well as a few of the more recent forms and inventions that are not on the market. We know, as he stated, that porcelain is strong only when it is in bulk. Dentists, as a rule, do not give this feature of porcelain enough thought. They do not, as a general thing, understand how much or how little stress it is capable of resisting without crushing. They will place porcelain in locations where its bulk is necessarily limited by the conditions, and where the stress of mastication is so great that it will not last any length of time.

When we consider porcelain with a view to obviating the use of gold, we must also consider the space to be filled, and whether the porcelain, if used, will be in sufficient bulk to withstand the stress brought upon it.

In closing the jaws, the muscles of mastication can exert great force, and without much effort I can close the gnatho-dynameter until it will register two hundred pounds. Others can close with even greater force, but the average, I believe, is from one hundred and seventy-five to two hundred pounds on the molar teeth.

If we place bridge work in the posterior part of the mouth, we must consider the amount of stress to which it will be subjected, and plan accordingly. In the last few days I have tested a few teeth with the dynamometer to see what stress they would stand, and I was surprised at some of the results obtained, some of the porcelain crushing under much less stress than I had anticipated.

A block 7x5 millimeters square crushed at two hundred and forty pounds pressure. Another 7x7 millimeters crushed at three hundred and fifty pounds. These blocks were made from porcelain teeth, ground square or nearly so. Smaller pieces crushed at proportionately lower pressure.

Teeth comparatively bulky and strong but which are grooved outside or hollow inside are correspondingly weakened, depending upon the depth of the groove or the size of the cavity.

Taking up the discussion of the teeth illustrated by the charts, we will refer to Diagram A, Fig. 1. This tooth is not manufactured now, except as the English tube tooth approximates it, but it was a good one in its day and place, and gave Dr. Peale quite a reputation.

Fig. 2 closely resembles the tooth Dr. Roach has given us, and it was an excellent tooth in its time, but unfortunately that also is not on the market. Since Dr. Roach has invented his system this form of porcelain is readily adapted to a great variety of cases.

There is, however, a tendency to fracture at this point (indicating) when the tooth is narrow and of insufficient bulk. I have seen a few break at that point when mounted after this method.

Diagram G, represents a bicuspid set in a socket. This will strengthen the porcelain very much, but I do not believe any socket can be so accurately adapted to a tooth as to render breakage impossible when the bulk of porcelain is deficient. These teeth are retained in the matrix or gold socket with cement or gutta-percha. The latter is yielding to a certain extent, and if sufficient stress is brought upon it, the porcelain is fractured, unless there is sufficient bulk to give the required strength.

Cement lessens the danger of breakage because affording better support, but is acted on by the fluids of the mouth to a greater or less extent.

As to the Mason tooth I have had some experience, with both good and bad results. Not having used them to any great extent, I cannot say what general results might be expected. In most cases where I have used them the teeth were long and the bulk of porcelain sufficient to withstand stress.

In other cases where bulk was not sufficient, the fracture occurred where the platinum was baked in the porcelain. I have never seen any break across the face of the crown at right angles to long axis of facing.

The crown illustrated in Diagram E, the Alexander method, I believe will prove a good one where conditions are favorable and where a sufficient bulk of porcelain can be used to insure strength.

Dr. Cigrand mentioned one objection, the attachment to the gold of the porcelain with cement. Then the illustration shows the porcelain ground to a considerable angle and affording a sloping instead of a right-angled base to receive the stress of mastication.

I think in cases where we depend upon cements for the attachment of the porcelain, the base on which it rests should be as nearly at right angles to the tooth as possible.

In cases where the porcelain can be firmly attached, securing a flat base and using thick pins, I see no reason why this system should not prove a good one.

Diagram H. Dr. Brown's methodis, as far as I am aware, a new one—a three-pin tooth. Up to the present time he has not succeeded in securing a manufacturer for it, and we have not had the opportunity of trying it.

I have for a long time had the idea that if we could have a better attachment, if we had more points of attachment, and if the pins extended more deeply into the body of the tooth, better results could be secured.

Dr. Brown seems to have struck the nail on the head, and I believe that tooth will be a good one to use in many cases. On the other hand, there are cases in which such a tooth will be of no more service than the ordinary forms, and that is where the bite is close and where absorption has not taken place to any great extent. In such cases the third pin would very likely be ground away in fitting.

I do not know how it will answer in practical cases, but judging from the illustrations and samples, as well as the principle involved, should say it would be worth testing.

In regard to the Dentenax tooth, the first thought that struck me was that the porcelain appeared very glossy, and glazed porcelain is, as a general thing, not very strong. I placed a tooth of this class under the dynamometer and was surprised at the amount of stress it withstood. It was an incisor, and was so placed that the cervical portion and the incisal edge received the pressure, and it required three hundred and fifty pounds to fracture a small portion of the incisal angle.

It appears to me that the platinum forming the attachment separates the body of porcelain and tends to weaken it. However, my experience with these teeth is limited, and this point is only assumed, but it is well enough to take it into consideration.

It is a well-shaped tooth; the cusps are better formed than on those usually procurable. One difficulty constantly met with is that the cusps of teeth are entirely too indistinct and are not anatomically formed.

We cannot very easily carve cusps in a porcelain block, and it is better to have them furnished us sharp and well defined, and if too prominent they can be cut down to suit the case.

Now a word or two about Dr. Cigrand's method of using a Logan crown for a bridge attachment. I have tried a similar method to the one he has described; have also tried a number of other methods by boring holes in porcelain and baking in the attachment, but with little success.

In time the stress, pulling at the platinum pins, breaks the porcelain away from around them, or the pins themselves break, and my experience with the method in question has been anything but satisfactory.

In regard to the essayist's method of constructing a crown by attaching the porcelain to the cope with vulcanite, it is certainly a cheap way to make crowns, but that is about all that is in its favor. Dr. Taggart aptly stated this at the State Society some four years ago, by saying that when he made a crown he wanted to make a good one, not a cheap one; and this crown is faulty because of the shrinkage that frequently takes place in vulcanite, and in such a case two open spaces would be present—one next the porcelain, the other next the cope.

In regard to the shell crown, the essayist gives Dr. Lawrence credit for having invented that crown in 1872. In 1866 or 1867, the late Dr. W. N. Morrison, of St. Louis, invented that crown and gave it to the dental profession. He did not hide it under a bushel, but published a description of it in the *Missouri Dental Journal*, in 1869, I think, and many of the older dentists of

St. Louis to-day remember it. Dr. Morrison deserves credit for this crown as well as for many other useful things, among which may be mentioned the Morrison chair, and the dental engine bearing his name, which he, together with his brother, Dr. J. B. Morrison, of Kansas City, invented.

I cannot understand how this shell crown came to be credited to Dr. Lawrence, since Dr. Morrison's published description of it preceded, by several years, the date at which Dr. Lawrence is credited with its invention.

Dr. Morrison, with his assistant and books, at one time went to New York as a witness in one of the cases brought by the Crown Company against some dentist, and through the testimony he was able to produce, in regard to the crown in question, the case was decided against the plaintiff.

Dr. W. H. TAGGART: It is somewhat difficult, after hearing the excellent paper read by Dr. Cigrand, without having read it, for me to give a very connected talk on this subject. In the first place, I wish to give Dr. Cigrand credit for the wonderful amount of energy he has displayed in collecting data on this subject, because it means a great deal of work. I suppose it took him at least two years to get together the material he has given us here in about twelve minutes.

With regard to the strength of porcelain, alluding now to the practical side and not to the discussion of individual cases, Dr. Prothero threw out some suggestions in regard to the strength of platinum pins in their attachment to teeth. The more platinum you get in a tooth, the weaker it is going to be. In other words, take one of the cubes Dr. Prothero speaks of grinding and putting under stress; if you put a piece of platinum inside of the cube it would be weaker than the other piece of porcelain, because the piece of platinum forms the center from which cleavage can start. This does not exist in the solid piece itself, so that in trying to get a stronger cube you do not get it by having more platinum in it. You might put a large chunk of platinum into a cube, but you would lessen the bulk of the porcelain around it, and as soon as you lessen the bulk of porcelain, just in that proportion you have weakened the tooth. Referring to the case of Dr. Brown's tooth, in adding a cross-bar with a third pin hanging down from it, you have got considerable platinum imbedded and have not added anything to the strength of it by doing so. Supposing we have a porcelain tooth at this point (indicating) with two pins in it, and that we attach to it a piece of metal as a backing, the piece of porcelain in its attachment to the metal backing can have no more strength than the weakest point, and the weakest point is where the pins enter the porcelain. According to the modern method of making a crown of porcelain, those pins are practically only used to attach to the bands in order to hold them there for the assembling. The principal strength you get from a modern porcelain crown comes not from the platinum that is in it, but it comes from having new porcelain attached to the whole surface, so that this facing attached with new porcelain back of it has a stronger attachment than it could have to a gold backing, and for this reason the facing is less liable to break off than that would be from a metal backing. Do what you will, you get no more strength than would be given by these two pins unless you lap the gold over, and it then becomes unsightly and contrary to the theory of the paper.

In regard to the other diagrams, and in particular to the interdental band illustrated here, I could not see it from where I was sitting, being too far away. As I look at it now, it represents a cylinder, and down here (indicating) are the two grooves. I understand that Dr. Cigrand is advocating this crown quite extensively lately, and if I am not correct I would like to have him set me right. If I remember rightly, some twenty-two years ago Dr. Buttner, of New York, invented what is known as the Buttner crown. He tried to trephine a groove into the root and to get a narrow band to go into it, but it did not prove a practical success, and was abandoned for some reason or other. We did not hear any more about it for twenty years or more, and now I believe Dr. Cigrand is advocating that method. If the doctor is doing so, and has found it to be a good thing, or has made any decided improvements in it, we would like to have him tell us about it. Personally I would like these things to go down in history in the right way, so that men can be given credit for their work and inventions. The dentist who is working from day to day and seeking improvements should get his just credit for original ideas.

With reference to the Davis crown, now advertised by the Consolidated Dental Manufacturing Company, the history of it dates so far back that there is no necessity for calling it a modern affair. Three or four times within the last ten or twelve years I have spoken not only before this, but other societies, about that kind of a crown, and gave the history of it. Dr. A. O. Hunt, of Iowa City, some fifteen years ago, at a meeting in Peoria, illustrated the first steps in the construction of this crown. It was put on the shelf for a while, then some ten years ago Dr. Ames improved on it, and then I took it up, and the outcome is practically this same thing. I have in my pocket now a statement to the effect that this crown was made ten years ago, and was shown before a meeting in Springfield, and a little later before the Chicago Dental Society. Dr. Hunt is here and will explain his connection with it. To illustrate (here Dr. Taggart went to the board), these two parts (indicating) are assembled in this manner, and the bridge made in this form. But the method is so old and has been demonstrated so many times, that I feel that it is, at this late day, to put it on the market as a new crown, an imposition on those who have gone before.

Dr. A. O. Hunt: I have no desire to claim special credit in connection with the Mason-Thompson crown other than that stated by Dr. Taggart. It seems to me the principle outlined as presented by Dr. Cigrand is essentially the same. I have demonstrated the method could be employed with any tooth; with a rubber tooth that has a headed pin, with a flat-back tooth using a slotted backing boxing, or a diatoric tooth with a boxing and pin. I showed various kinds of teeth that were set into this boxing—incisors, bicuspids and molars in the form of crowns and bridges.

Dr. Taggart spoke of the interdental band of Dr. Cigrand as being very similar to that of the Buttner. The difference is, that the Buttner crown had the band about the tooth. One of the reasons his method was not generally used was the difficulty of repairing. At the time of its introduction, we did not know how to repair the facing of a broken crown by the methods we now use.

I want to compliment Dr. Cigrand on his excellent paper, and to say that he has presented the subject in an admirable manner by these complete and extensive illustrations. He has given all the essential points that relate to the evolution of crowns, as experience has taught us up to the present time.

Dr. F. E. Roach: I want to thank Dr. Cigrand for his most excellent paper. To my mind it is the most comprehensive paper on the subject we have ever had.

To gather so much data and so profusely illustrate a paper means considerable expense, and a great deal of hard work.

To attempt to discuss, in detail, the various methods presented would consume considerable time, and as the hour is growing late I preferred not to enter into the discussion, but, complying with the request, and in deference to the essayist for his kind consideration of ideas credited to me, will say a few words.

Referring to the Logan crown, will say that it is the most artistic crown to be had. But for the weakness in its construction it would be the most universally useful, as well as the most artistic crown we could put in the mouth.

Dr. Taggart spoke of weakening a piece of porcelain in proportion to the increase in the size of platinum wire used for the pins or posts. This, in my opinion, is the fault with the Logan crown.

The large bulk of platinum baked into it makes it weak. If the portion of the post entering the porcelain were distributed in smaller wires, the crown on the whole would be much stronger. I use some Logan crowns, fitting them as suggested by Dr. Ottolengui, and setting them with gutta-percha, which lessens the liability of breaking and simplifies the removal of post from root when it is necessary to replace a crown.

The method devised by Dr. Cigrand of using a tooth cut away on the lingual surface, with pins baked in for the attachment of the solder, is a very simple and effective way of making a molar or bicuspid crown without the display of any gold.

The Mason method has some good features, but on the whole I do not like it. My objections are, that it is necessary to invest the several parts of the crown before soldering, that the rigid attachment of porcelain to backing weakens the porcelain, and the clumsy, unfinished appearance when completed.

The Davis crown, but for one thing, would be a splendid crown. The attachment of the post to the porcelain is very strong indeed, but the utility of the crown is simply ruined by the deep rings which are cut around the post, just below the shoulder, for the attachment of cement. This seems an inexcusable error in the manufacture of this crown.

The Davis-Townsend method, in assembled crowns, with matrix for each tooth is very limited in its uses. In a few cases of lower posterior bridges the method may serve very well.

In Diagram D, Fig. 2, is presented a crown which is new to me. I like the principle involved, i. e., distributing the supporting pins in several places. Before cementing the porcelain to place I would press to place with gutta-percha, and form a disc of this material for the joint.

Cement in a place of this kind would be very likely to disintegrate.

In regard to the Dentenax tooth, I would say that I believe it to be the strongest solder tooth on the market.

Can see some good points in Dr. Brown's tooth, and should like an opportunity of giving it a test.

Referring to Diagram D, which illustrates my ideas of how a crown should be made, will say, that the crowns as designed are not on the market yet, and as most of you are familiar with their construction, I shall pass it without going into details.

But as the drawing represents my crown made without a band, I want to go on record as being a strong advocate of the elimination of bands almost entirely for the front teeth, both in the individual and assembled crowns. The advent of gutta-percha for setting crowns and bridges renders this possible with much better results.

It is almost impossible to so adjust a band that the free margin of the gum will cover it and not impinge upon the peridental membrane.

Dr. E. J. Perry: I want to congratulate the society upon the excellent work which Dr. Cigrand has done. Any one who will take the time, pains, expense and intelligent care that he has to present this paper to us is certainly deserving of great credit, and he is to be highly valued as a member, and I congratulate the society on having such an excellent contribution. I also congratulate Dr. Cigrand on the manner in which he has presented the subject. It is really a history of crown work, evoluting forward and backward at various times. I suppose some dispute will arise as to who are the inventors of the various things mentioned, and little jealousies arise in attempts to establish priority.

One thing which impressed me in the paper was the nomenclature, although I presume the terms he used are all right. However, I presume it will be very difficult for the profession to adopt this new nomenclature literally. Personally, I like the old-fashioned method of referring to piers and abutments rather than to fillers in speaking of bridge work. A bridge has piers and abutments, and it seems to me to change the nomenclature in that regard would be a mistake.

Dr. W. V-B. Ames: I think Dr. Roach is too modest in what he has to say of the system with which his name is identified. I have been using his system ever since he brought it out, it being an improvement on what I call the Buttner method practiced by Drs. Hunt, Taggart, myself, and others for some years. For bicuspids and molars it is the same as the Davis-Townsend, without being restricted to that system for supplies. The fact that he has not been able to get these teeth specially manufactured is no drawback to me, as I can make over a Consolidated Company's molar or bicuspid easily to suit the purpose, or, better still, there are the Dentenax slotted teeth, which work in very satisfactorily for the purpose. The distribution of platinum in the regular Dentenax tooth strongly appeals to me for cases in which soldering of the tooth is be resorted to.

The Roach method enables me to avoid making a soldered attachment, in almost all cases using the teeth for vulcanite with headed pins (grinding off the flange to make it a flat back), or the Dentenax slotted tooth for incisors and cuspids and this latter for bicuspids and molars, modifying the system slightly according to some ideas of my own.

As to priority, I fear that Dr. Cigrand has placed Dr. A. H. Peck in an undesirable light by crediting to him one of the illustrated crowns. As I understand it, that crown was made before Dr. Peck became a dentist, he having demonstrated the possibility of soldering in the facing without investment.

Dr. W. H. Taggart: When I spoke of the energy Dr. Cigrand had displayed in writing this paper, I had not examined his specimens, but since then I have done so, and they are truly wonderful. They show an amount of energy that few dentists would be able to put into such work.

In regard to priority, Dr. Cigrand states that he has secured his data from the patent office at Washington. He says the latest improvements on these methods were not patented in some cases, so that they are practically not a patentable feature. It would pay all of you to examine these specimens and give him credit for them.

Dr. F. N. Brown: First of all, I wish to say that I cannot agree with Dr. Taggart in regard to the matter of platinum in artificial teeth, nor can I coincide with the argument he advanced, for the reason that the work which has been outlined here this evening has reference to solder work, and so far as I can see, it has no reference whatever to porcelain work. A certain amount of platinum is absolutely necessary for the retention of the porcelain facing in the assemblage of united crowns, which we term a bridge. If we have simply the ordinary gold plate tooth, with its two small pins like this (indicating), and we find those pins extend only a little ways into the porcelain body, as soon as we have pressure here at this point (indicating) the porcelain facing breaks. Now, that is all right if we add porcelain body, and having a saddle over the alveolar border to support this facing or tooth, then it does not matter how little platinum we have, because we are not dependent upon it alone as a means of support. But let me say, the ideal crown for the future, the crown that must come some time, through the ingenuity of the dentist, is one that occupies the least possible space on the alveolar border and is so strengthened by a plurality of platinum pins, as an integral part of the crown, and which permits of its being soldered and united in the assemblage of crowns in our bridge work. Then we can do away with the appearance of gold, and only then shall we have the ideal crown. We will say here (illustrating) is the alveolar border; such a crown must have an ideal cusp formation, and such a cusp formation and crown must have the line of a Logan crown, to more nearly approach the ideal tooth formation. That crown must come down in this manner (indicating), and gradually decrease in size until it represents the smallest surface resting on the alveolar border. Referring to the three pin crown which I invented, there has been no attempt made to place it upon the market and it is simply the *idea* which I hope will be carried forward and finally give us the ideal crown. If we can place the platinum pins in such a position that the bulk of the crown, that is, the portion of the crown that is brought in contact with the forces of occlusion and mastication, is supported by the platinum, loop or pins, then have additional support in the way of the third pin, we will have good results. The third pin is essentially a part of the coming crown, for we must have support at the point of contact or force, and also have ample means of attachment, at the same time using all the porcelain possible; only then do we approach the ideal crown.

Personally, I wish to thank Dr. Cigrand for the wonderful amount of energy he has displayed in the preparation of this work. I have enjoyed the paper exceedingly because anything practical appeals directly to me.

The manner of illustrating the paper is the best I have ever seen.

Dr. W. V-B. Ames : I want to go on record as saying that when a piece of porcelain is set into a box, which gives it support and surrounds its base entirely and cemented therein, dentists are not justified in calling it a temporary and weak attachment. If they had cemented as many pieces of porcelain in such boxes as I have, and seen them last for many years, and as Drs. Taggart and Hunt have seen them, they would not make such statements. Where a piece of porcelain is beveled against an inclining surface (it is not really a matrix because it does not sufficiently surround) and expected to be held by the cement, they may be justified in making such statements; but if they set it in a matrix which is really a matrix, the cement will hold it a dozen or twenty years, and that is a good average life for an appliance.

Dr. L. O. Green : The essayist deserves a greal deal of credit for the research work he has done along this line. There is one point that I wish to call attention to, and that is the classification of technical terms, so that we can more intelligently discuss prosthetic dentistry as applied particularly to crown and bridge work. The technical terms used by him, such as dextro-labial, dextro-buccal, etc., are all right, and it seems to me the profession should adopt and teach this method of classification, thus enabling us to discuss these subjects more intelligently.

In regard to porcelain, I believe the time is not far distant when porcelain will to a great extent take the place of gold, both as a filling material as well as in crown and bridge work.

In speaking of the Logan crown reference was made to drilling into side of crown and baking in extra pins for attachments in bridge work. This would weaken the case for soldering attachments in gold work, but in porcelain work it would be an excellent idea.

Dr. A. E. Matteson: I have very little to say in connection with this subject. As has been said, the essayist deserves the highest praise for presenting this excellent paper. There is one thing, however, to which I wish to earnestly protest, and that is in the remark made by one of the gentlemen who have preceded me in the discussion of this paper, and that was, if I understood him aright, "That it is unimportant *who* produced such and such improvements or results." Gentlemen, it *does* make a difference, and it is the difference between justice and injustice.

This is very poor returns for any one to receive, who has increased the revenues of the dental profession to the extent that the inventor of the gold crown has done. I care not who it is, if he has made any improvement, in method or appliance, from which we have derived a benefit, he should receive full credit and benefit.

Dr. William N. Morrison, of St. Louis, Mo., was unquestionably the inventor of the gold crown. In an article published in *The Missouri Dental Journal* of May, 1869, under the title of "A New Operation," he gives a description of the same which will enable any one to make a gold crown, and it was from this article that I was taught how to do so.

We next hear of it through a patent issued to Dr. Beers, of San Francisco, Cal., dated November 4, 1873. Application was filed September 27th of the same year. The statement has been made in some of our periodicals by one of the editors of this journal that Dr. Beers was a subscriber to *The Missouri Dental Journal* for the year 1869. You are permitted to cast your own inference.

As I have said, I was enabled to make crowns from Dr. Morrison's article, it might not be amiss to give the record, which is July 18, 1878, which is prior to the advent of Dr. Richmond in this city, for the purpose of giving instruction in crown work; and he informed me that I was the first he had met who was doing so since he had left the coast.

It has been remarked that Dr. Cigrand received his data from the patent office at Washington. This goes to show that the man who gave the invention to the profession, in doing so, made the mistake of not applying for a patent, and thus lost both the credit and the benefit, allowing others to take the "cake." Now a few words in regard to patents, and I trust you will pardon me if it is somewhat personal.

In 1882 I introduced to the Illinois State Dental Society—and it is of record in the published proceedings of that year—gold and platina plate, gold on one side and platina on the other.

It was suggested that as it was undoubtedly a good thing, and that a patent might prove a desirable acquisition, provided the claims were properly set forth and fully covered, and this could be best done by patent attorneys who were conversant with dental specialties. The address of such a firm was given me, and the case was placed in their hands, with the usual slow progress.

It is only fair to state that the dental profession, as the older members will remember, had but recently outlived the tribute levied by the Goodyear Dental Vulcanite Co.

Well, the case dragged along, I insisting on the claims covering the plate, until I received a notice from the attorneys. I quote: "We have the pleasure of informing you of the allowance of the tooth crown material application, and await payment of final fees." The fees were forwarded, and the patent I received covered "An artificial tooth crown shell or portion thereof, constructed of gold and platina, substantially as described."

Let me add that the gentleman who recommended these attorneys was the manager of a department in a dental manufacturing company and that the attorneys were also in the employ of the same company. Gentlemen, the gold and platina crown material is carried in stock by all prominent dental depots, yet I doubt if there are a dozen persons in this city who know who introduced the same.

Now, I have a suggestion to make. It is this: When any member of the profession has anything in the line of improvement which he wishes to bring forward and obtain credit therefor, he should present it before an association that publishes its proceedings, and he should *insist* that it be fully set forth. A society which will not do this much to promote ingenuity, and to thus "give honor to whom honor is due," is unworthy of a progressive membership.

Dr. McDowell (closing the discussion on his paper): I regret very much that Dr. Case was not here to open the discussion on my paper. I wish to thank Dr. Bentley for his excellent remarks. Of course, my paper covered too large a field for me to go into details of the development of the jaw and other subjects related to it. I was informed that my paper would be the only one for this evening, but when I learned at the last day that another paper was to be read I had to cut out many of the slides I should have shown.

The principal points I endeavored to bring out were that the food habit and environment have a decided effect upon the development of form, occlusal contact, and functional activity of the teeth. And in the study of comparative dental anatomy, it is from these three principal points we make our deductions, and use as a medium for the scientific study of the teeth of man.

Dr. Cigrand (closing the discussion): I shall occupy but a few minutes of the time of the Society in closing the discussion, and I must say that I did not come here to receive commendation for my work; I came here more for criticism, which is the watchword of the twentieth century. We profit more by just criticism than by commendation, but nevertheless I wish to say that what the last speaker has said (Dr. Matteson) is in a great measure true. I spent four days in the patent office at Washington to obtain the information that I have given the Society to-night, and what I learned regarding dental patents was an eye-opener to me. These patents overlap each other and are duplicated like the sidings on a house, and are given out as promiscuously and too freely, much like diplomas by diploma mills. But I had to go to some source that was comparatively reliable. Much of the information I have given is not to be found in our journals. I knew when I was to present a paper to you that it would necessitate a good deal of time and labor in preparing it, because the Chicago Dental Society ranks among the highest local societies in this country.

The first time platinum was used in connection with porcelain was by an American by the name of Charles W. Peale, the house dentist of George Washington. Peale and his son, Rambrandt, were the ones who first used porcelain and platinum together. There are inaccuracies undoubtedly in the patent office as well as in other things. I agree with Dr. Matteson in saying that credit should be given to those to whom it is due. I must say conscientiously, that while I did the best I could in the patent office, it was the most ramifying cobweb I ever got into in my life. If you ask there for new things, the man in charge will tell you that there is nothing new in the office; that the principles on exhibit are as old as the hills. He told me that he was not there to dispute patents, but to grant what he is ordered. That is the situation as regards the patent office.

Just a word or two in regard to Diagram C, Fig. 2. I wish to say that I demonstrated this crown in 1895 before the Illinois State Dental Society in connection with vulcanite, but in 1895 I had a tooth finished of cubic form, well supplied with porcelain under the buccal cusp, with the pin directed toward the thickest portion. This tooth was furnished me by Johnson & Lund and I use now and flow in gold and get excellent results. I have used more than a hundred and fifty of them, and I shall continue to use them until I find something better for individual cases. It is more adjustable than a Logan crown, although I make my band and build my tooth upon the cope. When you do it by this system, you are compelled to make the dental appliance according to the foundation already laid. I lay my own foundation and build accordingly. The criticism Dr. Taggart made at that time led me to produce something better, and I thank him for his criticism, which is a proper thing in any society. The man who cannot come before a society of this kind and receive criticism is hardly deserving of being a member.

Dr. Hunt has well answered the inquiry on my system of producing "intra-dental bands," and I need not dwell on this. The pins in nearly all porcelain teeth, especially as seen in Diagram B, Figs. 1, 2 and 3, are invariably too thick and too rigid. The S. S. White Company's manager at Philadelphia told me that if these pins were made thinner and pure platinum was used, so that the pins could be bent with the fingers, instead of using iridio-platinum pins, the teeth would be better. But the profession object to small pins. I agree with him and hold that a pure and thin platinum pin is sufficient.,

A word or two in reference to nomenclature as it appeared in my paper. It may be somewhat difficult for the members to understand very clearly, but I hope to have the opportunity of spending an evening with Dr. Perry about the importance of using such expressions as supra-dextro-labio assemblage. This nomenclature has been the result of careful compilation. The National Technic Association has emphasized the necessity of better names in prosthodontia. It is very essential that we come to a clear understanding as regards terminology as applied to prosthetic work, and the tables presented are in conformity to the association's wishes. I have suggested these various tables, and when you see them in print they will appeal to you as simple and comprehensive.

I sincerely thank the society for the generous appreciation rendered and feel honored by the kind words of those who took part in the discussion.

THE POWER OF "SANMITSU."

Japan, progressive and imitative as she is, boasts along with America and Europe a class of people who arrogate to themselves the possession of occult powers in certain directions. It is now announced that in Osaka, a young Buddhist priest has been and is creating a sensation by a series of marvelous cures, more especially of *kakke* (beriberi), toothache and warts, which he claims to effect by virtue of a mysterious power called *sanmitsu*. Two months ago he opened an office at the Doganji Buddhist temple at Kuchinawazaka, Osaka, where thousands of people assembled daily. This came to the notice of the authorities and the young priest, Yugaku by name, was arrested and examined in the Osaka Chiho Saibansho, being subsequently ordered to pay a fine of Y1.25 on a charge of "bewildering ignorant people by false pretenses." He appealed to the Higher Court and still continued his operations. A few days ago a number of local physicians and lawyers proceeded to the Doganji to inspect the process which was carried out, in their presence on subjects brought by the visitors. The first three ,presented to the priest complained of toothache, and he succeeded in extracting the aching molars without causing any pain whatever. The deponent sayeth not whether he used a pair of pincers, but explains that he folded his hands, and interlocked his fingers in accordance with a certain fixed form familiar to *Shingon* priests. A middle-aged man suffering from beriberi and who had been disabled for a long time was next treated by the priest, who after performing a religious incantation ordered him to stand and walk which he did without any difficulty, like a healthy man. On the conclusion of these operations, an oculist asked the priest if he could cure any ailment affecting himself, and on the priest replying affirmatively, the oculist produced a bottle containing a powerful and deleterious liquid from his pocket and asked the priest if he would allow him to pour a few drops into his eye, as he wanted to see whether he could cure the blindness which would inevitably result. The priest, however, flatly declined to submit to this experiment and retired after bidding his inquisitors adieu.

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THE NATIONAL DENTAL ASSOCIATION.

The next meeting will be held at Old Point Comfort, Va., beginning July 10. A vote of the association by postal card decided the matter. The Faculties' Association will meet July 13 in the afternoon and we suppose the National Association of Dental Examiners will hold its meeting at the same time and place. Members of the profession desiring to go to Europe can take Saturday steamers from Baltimore, Philadelphia and New York, July 14.

THE RIGHT TO PRACTICE DENTAL SURGERY IN FOREIGN COUNTRIES.

It may be noted that we publish elsewhere a short notice from a daily paper regarding the recognition of diplomas in England. We are not in a position to know exactly what was asked for and at present will only say that this may not be a movement in the right direction, or that it may have been proposed without due consideration. We publish below a letter from an esteemed correspondent on the subject, which to our way of thinking, may result in some good, although it is not quite correct in all particulars. We believe we do not err when we state the L. D. S. is recognized in some States of the United States, as for instance in Illinois, as the law specifically mentions foreign countries in summing up the necessary qualifications for license to practice. We would be glad to have any one conversant with facts on this point write in our next issue what the different States have done about the recognition of the L. D. S. from Great Britain.

"AMERICAN DENTAL PRACTITIONERS IN GREAT BRITAIN."

There is a movement on foot, inaugurated by American dentists practicing in Great Britain, of which we cannot clearly see the propriety. It is complained that the securing by American graduates of English registration should be made more easy and that some recognition should be given the American dental degree. While all American dentists would rejoice to see the proper consideration accorded to the graduates of American dental schools, every one must admit that we cannot conscientiously ask more than we would give. Every country has the right to administer its domestic affairs in its own way, and no foreigner has any right to complain so long as he is only subjected to the same requirements demanded of other foreigners, and which are as liberal as those granted in return.

There is this great difference between Great Britain and America. In the former country it is possible to have a general law that shall apply to the whole realm. America is composed of nearly fifty separate States, each of which has its own distinct educational system, and one State can no more interfere with the domestic laws of another than can England with America. It is impossible for us to have a general law passed by Congress that shall regulate educational matters in the different States.

Even the citizen of one State cannot go into another and enter upon dental practice without complying with State regulations and in nearly every instance submitting to an examination as to fitness, quite independent of any degree which he may hold. We dishonor our own colleges by refusing to acknowledge their diplomas. Can we reasonably expect a foreign country to do that for us which we will not do for ourselves? Not one of our States will admit an English qualified dentist to practice in this country without further qualifications. How unreasonable then for us to demand that which we will not concede.

Especially would we at once resent with indignation any attempt on the part of the English government, or English government officials, actively to interfere with the administration of our own domestic policy. Yet if we comprehend aright, this is just what certain American dentists practicing in England are trying to bring about on the part of America. They will not find themselves sustained by the professional sentiment in this country if that is what they are aiming at. SEREX.

A YOUNG PROFESSION.

Since the dawn of modern dentistry, a little more than sixty years ago, the whole fabric of colleges and societies with a few exceptions has been built. During this period the laws regulating practice have been enacted not only in this country but in others as well. It is not surprising that many diverse views of the functions of boards of examiners and the running of dental colleges should gain publicity through the remaining lever, the dental press. Would it not be well to pause and look around and see if the same questions are being debated in medicine, law, architecture and kindred professions? Are we not trying in our hurry and push to crowd too much in too short a period and make perfection in every line sooner than the world is ready for it?

The discussion of matters more or less irrelevant to progress occupy too much space in our periodicals. What we need is more scientific, painstaking experimentation and less political discussion. We are led to make these remarks because of the great prominence given to the question of patents, royalties, trusts and other semi-professional matters to the exclusion of strictly professional lines of work, which if more were done would indicate true advancement. We are believers in the idea that the cheapening of wares is not the sole object of professional living, but rather that the perfection of methods and materials will aid us to perform better services for our patrons. If the commercial spirit is to possess us wholly where will we land? Give us your thought, your methods of work, the results of labor and not so much reforming about the evanescent things. Do something and contribute to the edifice we are erecting. Let your works speak for themselves.

HOW TO GET TO PARIS.

As many dentists will be going to Paris to attend the dental congress this summer (August 8 to 14), we believe some of them will be making their first visit. A few hints may not be out of place. If you land in England you can go to Paris via Southhampton and Havre from London. (If you expect to return to London a return ticket fourteen days or thirty days will be much cheaper than two single tickets.) You can go via Dover and Calais or Folkestone and Boulogne or Newhaven and Dieppe. (The fare for the round trip is much cheaper by Southampton and Havre and Newhaven and Dieppe). A return ticket being about $22.50, Dover and Calais, or second-class $17. Folkestone and Boulogne fares the same for round trip. Newhaven and Dieppe $14.50 first-class, and $10.50 second-class. Southampton and Havre first-class $13.75, second-class $9.75. There are night tickets sold at a much lower rate (these are not recommendable). Night traveling for pleasure is not the way to see the country.

If one lands at Boulogne or Cherbourg, the fare first-class from Cherbourg is $8.50, second, $5.70; from Boulogne first-class about $6, second, $3.75. To a new traveler a through ticket is recommended if it is the intention to return via the same route. Only fifty-six pounds of baggage is carried *free* on the trains on the Continent; no charge for hand baggage taken into the train. The traveler when he goes to a hotel pays extra for lights and attendance, generally even in the largest and finest hotels. You must carry your own *soap;* it is not furnished free as in the United States. In Paris we can recommend a few small hotels, having stopped in them in years gone by. Hotel De L. Amirauté, Hotel Chatham, Hotel de Rastadt, Hotel de L'Empire, all in the rue Daunou, near the rue de la Paix, and not far from the Grand Opera. Hotel, Louis le Grand, and Hotel de Boston in the rue louis le Grand, also near the Opera; Hotel de Valois, 69 rue de Richelieu, Hotel de Malte, 63 in the same street; Hotel Louvois on the Square Louvois. On the Avenue de L'Opera ; Hotel Bellevue, Normandy, Hotel Binda and Hotel Therese, the two latter being just off the avenue in the rue St. Anne and rue de L'Echelle. Large hotels are the Grand Hotel, Continental, Hotel du Palais, Trocadero, Grand Hotel du Louvre and the Hotel Rítz. We can recommend the following boarding houses: Miss Helen Cole, 1 rue Vital, near the Trocadero; Miss Widdicombe, 11 Ave. Macmahon, and Madame Van Pelt, 4 Square de Latour Maubourg, near rue de Grenelle. Later we will give a few more addresses.

DOMESTIC CORRESPONDENCE.

ENGLISH AND AMERICAN DENTAL COLLEGES.—A COMPARISON.

TO THE EDITOR OF THE DENTAL REVIEW.

Sir:—We hear from English sources a great deal concerning the superiority of their teaching and the more elevated tone of English professional colleges, and certain of their men affect to look down upon American dental colleges as from a higher plane. Here is the record of the hospital or infirmary work of two of them for one month, as published in one of the English dental journals:

Manchester Dental School :

Extractions	676
Gold fillings	129
Other fillings	325

Birmingham Dental School :

Extractions	1,127
Gold fillings	45
Other fillings	276

The Glasgow Dental School reports 5,477 extractions and 1,827 preservative operations for the year 1898.

Let us analyze these figures and see what kind of dentistry is taught in these schools. Surely the object of a practitioner of any branch of medicine should be to heal, to cure, and not to kill. The medical school that confines its instructions to the best methods for producing euthanasia or painless death, the most aesthetic forms of burial and the erection of the most artistic tombstones, cannot be considered a very efficient professional institution.

In the Birmingham Dental Hospital, or school, there were extracted twenty-five teeth for every one filled with gold. There were about three and one-half teeth extracted for every operation intended for the preservation of diseased teeth. There were six plastic fillings inserted for every one of gold. There were *five* crowns made and there was *one* bridge inserted during the month of February, and this in a dental school in which during the same time more than eleven hundred teeth were destroyed.

The record of the other colleges named is a little better, but they simply emphasize the fact that there may be degrees in dental carnage. No American school with such a record could retain its membership in our association of dental colleges for a single term, for American schools teach the salvation and not the destruction of the dental organs. Is there not room for a little reform in English dental colleges, and might they not learn something from the schools which they assume to be inferior?

AMERICAN DENTAL TEACHER.

LETTER FROM DR. C. W. F. HOLBROOK.

NEWARK, N. J., February 26, 1900.

Mr. Editor:—Please allow my answer to appear in your public-spirited journal to an article attacking me in the *Digest*. Dr. Crouse refused this privilege.

C. W. F. HOLBROOK, D. D. S.

MR. EDITOR.

Dear Sir:—There appeared in the December *Digest* an article entitled, "Are there Traitors in the Camp?" the writer of which, after referring by name to certain Newark dentists who had made an honorable settlement with the Crown Company, says as follows:

"Personally, we believe this so-called settlement is merely an arrangement between these men and the 'Crown Company,' the ulterior purpose of which is to make it appear that some members at least have no confidence in the Protective Association, as this would, of course, tend to awaken the influence of our organization, etc."

During the dental convention at Niagara Falls, when the newspapers published the decree of the court in favor of the "Tooth Crown Company," Dr. Crouse declared that he was utterly surprised and dumbfounded, as he even did not know the suit was pending. All who were present at the convention remember his talk, and that he sent for his lawyer, who also expressed surprise and professed ignorance of the whole matter. At that moment the idea occurred to me, that if the men to whom we paid money to protect our interests could not keep track of what was going on in open court in a suit the outcome of which would be of more vital importance to the dental profession than any ever before instituted, then we need no longer look to Dr. Crouse or his lawyer for protection. That view of the matter would, naturally, destroy our confidence. But equally bad, or perhaps worse, is the only alternative view—that these two men, Dr. Crouse and his lawyer, were cognizant of the suit. In fact, I know that they advised witnesses while it was in progress, yet to us they professed ignorance. And now, as if to further test our credulity, they cry "Traitor," when a dentist complies with a ruling of the United States Court.

I am a member of the D. P. A., and gave my money that I might be protected against fraud and imposture, but not for witnesses like those described in Judge Townsend's opinion:

"To further support the defense of anticipation, the defendant has introduced the same witnesses who, and the same exhibits which were before the court in the Bennett case. The inexplicable contrast between the statements of the same persons in the two cases is either an object lesson as to the fallibility of human memory and the uncertainty of human testimony, or is forcibly suggestive of perjury and fraud. * * *

"In the present suit not one of these witnesses is able positively to identify said exhibit, and the 'wife of a clergyman and her two daughters' now testify, after an examination of church records, etc., that they were mistaken in their former testimony, and that the cap was not put in Mrs. Martz's mouth until 1878, or until after the Low invention was completed, as found in the Richmond case and further proved herein. Even Dr. Beardslee now says that he cannot now testify that said work was done any earlier than the year 1878, and that, so far as he knows, the testimony of the Martzes as to the date when it was done, is correct. And further, as if to cap the climax of these contradictions, an apparently disinterested witness, Dr. Palmer, testified that he himself made the Beardslee-Martz exhibit, and was told at the time that 'whatever of the kind I did was for use in defending the suit of the International Crown Company.' It is unnecessary to discuss further this branch of the case. * * *

"The defense of anticipation herein is overwhelmingly disproved by disinterested witnesses. The methods by which the Beardslee-Martz evidence of anticipation was secured by Dr. Beardslee in the Richmond case appears to have been questionable and reckless, and it is to be hoped that such practices are unusual. The contradictions in his testimony are so direct and material as to disentitle him to any consideration. * * *

"Day's testimony has not been discussed because his veracity is attacked, his testimony is contradicted, and the facts stated by him, if true, would be insufficient for various reasons."

A few years ago this class of work was unknown to me, but there are others who claimed it was old. So we banded together to raise a fund that might be used to investigate and find out the former state of the art, and Dr. Crouse was entrusted with the task and the funds. What he has done is here stated by Judge Townsend in the United States court. How he has spent the funds we do not know, but we think if he has proper evidence he must produce it soon or be branded the Arnold of the "camp."

If the *Digest* is the mouthpiece of the dental profession, why has not the decree of the court appeared in it? Is the profession not capable of reading it understandingly?

Furthermore, while we were sending communications to Dr. Crouse to Chicago in regard to the suit, and waited several days for his tardy reply, we learned—and now know it to be a fact—that at that very time he was wining and dining in New York City with the president of the Tooth Crown Company. In the early history of this Republic, when Arnold did such things, he had to flee the country.

In addition, we know of prominent dentists, members of the Dental Protective Association, who applied to it for protection when they were sued by the Crown Company. They were sued, enjoined, and suffered great loss, but were not defended by the Dental Protective Association, nor reimbursed by it for all their outlay.

Now, these are some of the reasons why we paid the Crown Company.

LETTER FROM DR. S. G. PERRY.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—Apropos of our conversation after the reading before the New York Odontological Society of your paper on the loosening of teeth, let me call your attention to a paper of mine read before the same society January 16, 1883, and published in Vol. XXV of the *Dental Cosmos*, page 187.

In that paper I contended that the troubles that arise about the apices of dead teeth are due to the presence of microörganisms.

So far as I know that was the first published statement of this idea. To-day I believe it is accepted as true, and forms the basis of treatment of dead teeth throughout the world.

In the same paper I expressed the belief that the loosening of teeth is due mainly to the same cause. That idea is not yet accepted, but seventeen years further study of the subject strengthens my belief that it is true.

Reading between the lines of your remarkable paper—remarkable because of the great labor involved in presenting the views of others, as well as for its fairness to all—I am led to think you incline toward my view. However, I do not wish to draw you out, but only desire to give you the date of my paper, and beg you, at some convenient time, to look it over.

When it can be shown that, as the nervous energy is withdrawn, as in illness, or in old age, or when, by accident, or by the accumulation of tartar, or by lack of use, pockets are formed, microörganisms *cannot* cause all the destruction we see, then I will look elsewhere for the cause.

I never hesitate to implant a tooth by the side of loose neighbors, knowing that when a new set of conditions are established by that radical means healing and health will follow as far as that tooth is concerned.

The deadly pocket is destroyed by this procedure, and the healing process is too rapid for the microörganisms to get a new foothold.

In the discussion of your paper Dr. Hofheinz testified to having also discovered that a tooth could be successfully implanted in a pyorrhea mouth. He also stated that after a summer's rest and recreation pockets by the sides of certain of his own teeth gave less trouble. This is exactly what might be expected. If men and women could be forever young and well, the burrowing germs ever present in every mouth could not get in their fatal work.

It has long seemed strange to me that the profession should go all the way round Robin Hood's barn in search of the cause of this trouble, when I believe it can be found near at hand.

Of course this is not the statement of a fact—the time has not come for that, because the evidence is not yet all in—it is only the expression of a belief. There is a dogmatic quality in human nature that leads men to cling to their beliefs, and I am human enough to cling to this, and am willing to risk being ridiculous by expressing it, if times proves that I am wrong. I believe the question will be finally settled along the lines of microscopic research so ably shown by Dr. Williams in his paper on caries a year ago. Yours most truly, S. G. PERRY.

SPECIAL CORRESPONDENCE.

THE MCKELLOPS BANQUET.

On the evening of Saturday, March 24, it was the good fortune of the writer to be present at a complimentary banquet, given by the St. Louis Dental Society, at the Planters' Hotel, in honor of that grand old Chesterfield of the profession, Dr. H. J. McKellops.

The banquet hall was especially decorated for this occasion; the walls of the hall and the supporting columns were draped and festooned with the national emblems; the tables, set in the form of a cross, sparkled with an elaborate display of the most beautiful crystal and cut glass, while roses and violets were strewn among the dishes in the greatest profusion, reminding one more of an elaborate wedding feast than a dinner to a man who had buffeted the storms of life for more than seventy-five years, and given for fifty-six years the very best of his life to the profession which he has so much loved and done so much to honor.

"Our Mack," as he is familiarly called by both the old and young of the profession, looked as fresh, fair and blushing as the white and red roses which were banked in lavish profusion before him, and bids fair, to all outward appearances, of living to write the epitaphs of many much younger men than himslf.

Our genial friend did not, however, seem to be quite himself, for it was evident that he was touched to the heart by the love and esteem which was made manifest upon this evening.

Each member and guest vied with the other to do him honor, and it is doubtful if any man in the profession ever received a greater or more hearty ovation from those who have known him best and have learned to love him for his sterling qualities than Dr. McKellops received on this occasion. How much better it is to strew flowers in the pathway of our friends and fellow colaborers while their hearts still pulsate and they have the power to enjoy the fragrance of these emblems of love and purity than it is to wait until we are called upon to place them upon their bier—a time when such expressions come too late to give encouragement to the heart that was, perhaps, weary and sad, and at times pined for some expressions of commendation from those with whom and for whom they have labored and perhaps sacrificed much more than either the recipient or the world wots of.

No man, either living or dead, has done more to uphold the dignity of the calling of the dental surgeon, or has labored more earnestly for its advancement in ethics and practice, than has our friend, Dr. McKellops; and when he is called to take passage across the river with old Charon, which we trust will be many, very many years hence, the heartstrings of the profession will be sadly lacerated, but his image will remain enshrined in those same hearts as long as our intellect shall endure and life shall last.

The menu cards, which were very beautiful, contained a fine half tone of the doctor, which makes a very beautiful souvenir of the occasion. The speeches after the dinner, which by the way was most elaborate and superbly served, were many and felicitous. The toastmaster of the evening was the president of the society, Dr. W. F. Lawrenz, who in well chosen and fitting words called attention to the object of the gathering and the honor which the society had conferred upon itself in thus honoring the distinguished gentleman for whom this love feast was prepared.

He then introduced Dr. John G. Harper, who responded to the toast, "Our Honored Guest." Dr. Harper's response took the form of a short biographical sketch in which he briefly renewed the history of Dr. McKellops from his birth at Salina, now the first ward of Syracuse, N. Y., up to the present day, paying him many well earned and beautiful compliments as a dutiful son, an earnest student, a conscientious practitioner and a noble citizen.

Dr. A. H. Fuller, dean of the Missouri Dental College, was the next speaker, and responded to the toast, "The St. Louis Dental Society." In a brief and hasty sketch he reviewed the history of the society and reverently called to remembrance the names of those departed members who were the honored confrères of Dr. McKellops in the years that were past—Drs. Judd, Spaulding, Chase, Eames and Parks, and thanked the All Wise for still preserving to the profession and the world the much loved and honored guest of the evening.

The toastmaster next introduced Dr. M. C. Marshall, who responded to the toast, "The Sign of the Cross," which title he was careful to state referred to the beautiful cross of gold studded with diamonds, which rests over the loyal heart of our friend and which has become a part ot his personality.

Dr. Marshall in responding to this toast called attention to the fact that the table at which the guests were assembled was set in the form of a cross and that the flowers banked before the honored guest were also arranged in this form. He called attention to the fact that the cross which was raised upon Calvary was the emblem which stood for self-sacrifice, purity in thought and life and of a love that passeth understanding. The cross upon the breast of our honored guest stands also for self-sacrifice, for has he not given freely and most unselfishly of his time and means in his endeavors to advance the best interests of the profession, often traveling hundreds, and even thousands of miles that he might bestow upon his fellow practitioners, without money and without price, any new or valuable method of operative procedure which it had been his good fortune to become possessed? Selfishness was never known to the heart of McKellops.

In his professional dealing both with his brethren and the public the honesty of his purpose or the purity of his ethics have never been called in question, while love for his art and for his professional brethren has endeared him to the hearts of all those who have ever come under its beneficent influence.

Dr. E. H. Angle was the next speaker and replied to the toast, "How Can We Regulate Him?" Dr. Angle's speech was exceedingly humorous and consisted of the relation of several imaginary attempts made by himself and other convivial friends to drink the old gentleman under the table, all of which the sequel showed, proved disastrous failures; and then in a more serious vein spoke of him as a *mighty bulwark* against all that was ignoble in the profession, and thanked God for such a noble and stanch champion of the right, while lamenting the fact that there were so few men of like metal to be found in our ranks to-day.

Dr. Wm. Conrad responded to the toast, "The Typical Professional Gentleman of the Old School." Dr. Conrad said in brief that the toast did not apply to the honored guest of the evening, for he was not a fossil or a moss-back, but an up-to-date practitioner, a typical gentleman of the new school—a gentleman who appreciated the good and the valuable and had done more than any of his confrères to spread abroad method of operation and of treatment which appeared to his good judgment and experience as valuable.

The last set speech was by Dr. M. R. Windhorst, who responded to the toast, "Good Fellowship." He complimented the Society upon its good fellowship, and particularly upon the spirit which had prompted this exhibition of good will and good fellowship. Dr. McKellops, he said, had always been noted for his good fellowship and for warm-heartedness toward members of his own profession. No worthy young man ever approached Dr. McKellops who did not receive a warm welcome, encouragement and good advice.

It was no wonder then that he had so many friends, particularly among the young men. It was no wonder that all loved him and prayed that he might long be spared to shed his beneficent influence over the profession, closing with the sentiment of the toast, while all stood and drank to his good health:

"While there's life on the lip,
  While there's warmth in the wine,
One deep health I'll pledge,
  And that health shall be thine."

From this time until midnight the company resolved itself into an old-fashioned class-meeting and in true Methodist style every one was called upon to express his sentiments of love for the honored guest and their appreciation of the invaluable services which he had rendered to the profession. It was in truth a very love feast and warmed the heart of him whom we all delight to honor.

The exercises were closed by the passing of the loving cup, from which all drank, wishing the honored guest at the same time many years of health and happiness.

The doctors present included: H. J. McKellops, W. F. Lawrenz, A. H. Fuller, A. J. Prosser, F. F. Fletcher, O. H. Manhard, B. L. Thorp, M. R. Windhorst, Edw. H. Angle, J. B. Newby, De Courcey Lindsley, Walter M. Bartlett, John G. Harper, J. H. Kennerly, M. C. Marshall, H. M. Baird, H. M. Hill, William

Conrad, T. L. Pepperling, Ill.; Geo. A. McMillen, Alton, Ill.; C. J. Tibbets, Quincy, Ill.; John S. Marshall, Chicago, Ill.; H. A. Pullen, W. G. Cox, P. H. Morrison, C. D. Lukens, C. F. Schumacher, James P. Tarper, F. H. Bond, S. C. Nifong, W. A. Roddy, O. J. Fruth, D. O. M. le Cron, Al D. Fuller, Burt Barry, A. Flickinger, P. H. Eisloeffel, J. G. Pfaff, C. P. Pfaff, Leo McKellops, H. Prinz. Mo.

DENTISTRY IN NEW ZEALAND.

BY HERBERT COX, D. D. S.

MEMBER OF THE FOREIGN ADVISORY BOARD OF THE FOREIGN RELATIONS COMMITTEE OF THE N. A. D. F.

In answer to the circular letter of inquiry sent out by the Foreign Relations Committee, Dr. Herbert Cox reports as follows for New Zealand:

In 1880 an Act was passed, the main features of which were as follows:

(a) That no one unless a qualified practitioner shall use the name and title of dentist, or any title or description implying that he is a legally qualified dentist.

(b) Any one on the English Dental Register may register in New Zealand.

(c) That a Board of Examiners in dentistry be appointed by the Senate of the University of New Zealand.

(d) All foreign diplomas to be endorsed by the Board of Examiners if they see fit. Appeal to be allowed to the Governor in Council.

(e) Liability to imprisonment not exceeding twelve months for fraudulent registration.

In 1881 an Amendment Act was passed, the main provisions of which were to provide for the registration:

(a) Of any person who for at least three consecutive years has been the pupil of a registered dentist, and who within one year after expiration of pupilage has passed the required dental examination before the Board.

(b) Any person who has been in practice in New Zealand for five years, from 1875 to 1880.

In 1891 another act was passed which was a big step backward. It took the appointment of the Dental Board out of the hands of the Senate of the University (a fine body of educated and independent men) and put it into the hands of the "Governor in Council," in other words political influence. Another act which practically bears on dentistry here is the "Factories Act." Under it dentists have to register each year, stating number employed, salaries, ages, etc., and we are not allowed to have any one to help after one o'clock on Saturdays, or on any public holiday. The inspector has the right to demand admission at any time. An appeal to the Supreme Court against this was lost, the Boards deciding that dentistry was a "handicraft." To be licensed here you require either:

(a) Three years pupilage and an examination.

(b) To be previously on the English register.

(c) Possession of a diploma; but several D. D. S. diplomas have been refused.

There is no dental college or other institution teaching dentistry in New Zealand. It would, I think, simplify the admission of English students to American colleges if you made a rule only to accept a preliminary examination which entitles the holder to registration as a dental or medical student in England.

These educational examinations are now held all over England and her colonies and are the same as required from ordinary medical students.

We have in New Zealand 260 registered dentists, holding American diplomas from reputable colleges, and one bogus one (purchased).

MEMORANDA.

If you are going to Springfield, take the Chicago and Alton.

The New York State Dental Society will meet in Albany, May 9-10.

Dr. W. E. Griswold, of Denver, spent a few days in Chicago in April.

Dr. E. H. Angle will open a school of orthodontia in St. Louis, May 1, 1900.

All roads lead in the direction of dental gatherings for the next month or two.

Dr. T. W. Brophy has returned from California where he has been rusticating for some time.

Dr. L. J. Mitchell has returned to England after spending three months in the United States of America.

Several dentists in England have gone to the front in South Africa to care for the wounded and suffering soldiers.

The Kansas State Dental Association will meet in Topeka at the Hotel Throop, May 3, 4, 5. A good program has been issued.

Several dentists are going to Paris on the "Aller" and the "Umbria," July 21. A few who wish a longer sea voyage are going on the "Sparndaam."

If you have unpleasant shocks from touching the tongue to an amalgam and a gold filling at the same time, paint them with gutta-percha solution or with melted paraffine.

We notice with regret the tendency to discuss purely local questions in dental journals, re education, State examinations and subjects like patents, with too much acerbity and acrimony.

From present indications there will be a large number of dentists going to Paris this summer. If you are in doubt about accommodations write to Thos. Cook & Son, 261 Broadway, New York.

Two members of the profession in and near Chicago have been bereaved of their wives very recently—Drs. J. J. Reed, of Rockford, and L. L. Davis, of Chicago. To both we extend our sympathy.

The St. Louis Dental Society has issued a very attractive program for the ensuing year. We notice that Dr. H. J. McKellops will read a paper, "A Retrospect—Fifty Years of Dentistry in St. Louis."

The Nebraska State Dental Society will meet in Omaha May 15 to 18. A cordial invitation is extended to visiting dentists. LEAH MILLS,
Corresponding Secretary.

The Tri-State Dental Association—Indiana, Kentucky and Illinois—will meet at Evansville, Ind., May 8 to 11, inclusive. Elwood Smith, Mt. Vernon, President; W. H. Brosman, Secretary. A good program will be presented.

MICHIGAN DENTAL ASSOCIATION.

The annual meeting of the Michigan Dental Association will be held at Kalamazoo, June 11, 12 and 13. CHAS. C. NOBLE,
Secretary.

The sixth annual meeting of the Southern Wisconsin Dental Association will meet at Janesville, May 2 and 3, 1900.

DR. F. S. KNAPP, *President.*
Lancaster, Wis. DR. J. H. REED, *Secretary.*

The Illinois State Board of Dental Examiners will meet at Illinois Dental School, Chicago, May 3, 4, 5. Applicants for license will bring instruments for doing practical work. Notify the secretary ten days before the meeting if you wish to take an examination. J. H. SMYSER,
70 State St. *Secretary.*

STOMATITIS FROM RUBBER TEETHING RINGS.

Pott (*Munch. Med. Woch.*) believes that injuries to the mucous membrane of the mouth play an important role in the production of stomatitis, and he objects strongly to the use of rubber nipples and rings often given to children for the purpose of quieting them. The constant sucking on them, he says, is apt to produce lesions of the mucous membrane.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

Will you please announce in your journal that the National Association of Dental Faculties will meet at Old Point Comfort, Va., on the afternoon of July 13, 1900. Yours truly, J. H. KENNERLY,
Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

The thirty-sixth annual meeting of the Missouri State Dental Association will be held July 10, 11, 12, 13, 1900, at Louisiana, Mo. A cordial invitation is extended to all reputable dentists to attend.

B. L. THORPE, *Cor. Secy.*
Laclede and Vandewater Aves., St. Louis, Mo.

DENTAL WAX.

Gum mastic	6 ozs.
Castor oil	4 ozs.
Yellow wax	30 ozs.

Powder the mastic and add it to the melted wax, stirring all the time. When melted add the castor oil. Strain, and perfume with a few drops of oil of wintergreen.

CHICAGO DENTAL SOCIETY.

The following officers were elected at the annual meeting April 3: President, Geo. W. Cook; first vice president, Geo. B. Perry; second vice president, H. J. Goslee; recording secretary, E. MaWhinney; corresponding secretary, C. S. Bigelow; treasurer, A. B. Clark; librarian, H. W. Sale; member ot the executive committee, J. E. Hinkins; board of censors, W. V-B. Ames, C. N. Johnson and A. W. Harlan.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

In consequence of a contemplated new movement by the association, with the probability of considerable benefit both to the State boards and the more advanced colleges whose educational standards are high, the Secretary most earnestly requests from the officers and members of the several State boards in the United States and Territories a new list of officers and members.

An early compliance with this request will be most heartily appreciated.

CHARLES A. MEEKER, D. D. S., *Secretary,*
29 Fulton St., Newark, N. J.

NATIONAL DENTAL ASSOCIATION.

The meeting of the association, which was to have been held June 26 at Old Point Comfort, has been changed by vote of the members to Tuesday, July 10. Reports from officers of sections indicate that we shall have a very high order of work done at this meeting. Men have been selected to write papers because of their peculiar fitness for the undertaking, and enough of those invited have accepted to insure a full program. A special feature will be clinics under the supervision of Section III. It is hoped that there will be as large an attendance as there was last year at Niagara.

B. HOLLY SMITH,
President.

TOOTH CREAM.

Castile soap, in fine powder	½ oz.
Prepared chalk	1 oz.
Oil of rose geranium	8 drops.
Glycerin, a sufficient quantity.	

Whether oil of rose geranium or some other oil be used as a flavoring is, of course, a matter of taste. Both wintergreen and peppermint are popular flavors, while spearmint is probably more grateful to many mouths than either.

A pink color may be given to the preparation by the addition of a small quantity of cochineal coloring.

MODELING WAX.

The following formula is said to be used in preparing the wax employed in the modeling rooms of the Philadelphia Academy of Fine Arts:

Yellow wax	16 ozs.
Cornstarch	8 ozs.
Venice turpentine	4 ozs.
Olive oil	1 oz.
Venetian red	1 oz.

Melt the wax and oil, to which add the cornstarch and Venetian red, constantly stirring; lastly add the Venice turpentine. Pour the mixture in thin layers upon greased tiles, and when cold remove and roll into bundles.

Paris, le March 19, 1900.

To Dental Societies in the U. S. A.

Dear Sir: The Organizing Committee of the International Dental Congress of 1900, has the honor of asking you to appoint a delegation to the said Congress, to represent the Society of which you are President.

This delegation could consist of one delegate for every twenty members of your Society.

We beg to draw your attention to the importance of your participation, as much for the benefit of your Society as for the interest of the Congress.

Hoping you will be able to accept this invitation.

We beg to remain, Yours confraternally,

E. Sauvez,
Secretary General.

Ch. Godon,
Chairman.

P. S.—(A prompt answer would oblige).

N. B.—For further information or inscriptions please address: M. E. Sauvez, Honorary Secretary, and for subscription, M. Georges Viau, Treasurer.

THE DISINFECTION OF ROOMS.

Drs. Novy and Waite, in the *Medical News*, conclude a paper upon this subject with these general directions:

1. All cracks or openings should be caulked tight with cotton or with strips of cloth.

2. The linen, quilts, blankets, carpets, etc., should be stretched out on a line in order to expose as much surface to the disinfectant as possible. Books should be suspended by their covers so that the pages are freely exposed.

3. The walls and floor of the room and the articles contained in it should

be thoroughly sprayed with water. If masses of matter or sputum are dried down on the floor, they should be soaked with water and loosened. No vessel of water should, however, be allowed to remain in the room.

4. One hundred and fifty cubic centimeters (five ounces) of the commercial forty per cent solution of formaldehyde for each 1,000 cubic feet of space should be placed in the distilling apparatus as rapidly as possible.

5. The room thus treated should remain closed at least ten hours.

AMERICAN DENTISTS PROTEST. OFFICIAL ACTION ASKED TO REMOVE DISCRIMINATIONS IN ENGLAND.

WASHINGTON, March 3.

Ambassador Choate will be instructed to call the attention of the British foreign office to the discriminations against American dentists in England, with a view to having them removed.

Dr. L. J. Mitchell, formerly of Ohio, who is now practicing dentistry in London with his brother, Dr. William Mitchell, called at the State Department to-day with Representative Lybrand, of Ohio, and told Secretary Hay that since 1893 the British government had refused to register American dentists. Before that year, he said, graduates of the Harvard and Ann Arbor dental schools had been registered there, but about that time many of the other dental schools in the United States had raised their standard to the same level as Harvard and Ann Arbor, and the English authorities thereafter refused to register any American dentists.

Secretary Hay said he would instruct Ambassador Choate to endeavor to have the discriminations abolished.

HOW FUNNY IT SEEMS TO AN OUTSIDER!

There is said to be a demand for dentists for our troops in distant fields. Whether the demand is by the multitude of dentists annually manufactured out of the brief courses in the rushed-up institutions all over the country or by the troops for relief from toothache is not quite clear. The dentists insist upon a military rank for accompanying the troops and will, of course, expect pay besides. In some European armies a chiropodist follows each regiment and has plenty to do. Military rank has not been proposed in Europe yet for chiropodists.

It would appear reasonable to require every commissioned dentist to be a doctor of medicine. That ought to be rank enough. Let us keep the increase of title bearers within limits. Title or no title, a corn doctor would be a blessing every regiment would appreciate as much as a dentist. There was never yet a philosopher in uniform or out of it "who could endure the toothache patiently." If dentists would add corn curing to their specialty the boys on the road would give them any rank they yearn for.—*Editorial in Chicago Chronicle.*

NEBRASKA STATE DENTAL SOCIETY.

Program twenty-fifth annual meeting of the Nebraska State Dental Society at Omaha Dental College, Twelfth and Pacific Streets, Omaha, May 15, 16, 17 and 18, 1900:

Tuesday, 10 A. M.: Meeting called to order. Roll call of members. Reading of minutes of last session. Report of committees. 11 A. M.: Address of welcome, Rev. T. J. Mackay, Omaha; response, J. S. McCleery, Beatrice; President's address, W. A. Ivory, Wayne. Afternoon: W. H. Sherraden, Supervisor of Clinics; A. O. Hunt and Leah Mills, Assistants. 2 P. M.: C. H. Darby, St. Joseph, Mo., "Porcelain Inlay, Jenkins' System;" L. P. Davis, Lincoln, "All Gold Bridge;" G. S. Nason, Omaha, "Richmond Crown with Contour Filling—Novelty;" F. M. Shriver, Glenwood, Iowa, selected; H. J. Hill, Alma, "Saddleback Bridge, Hollingsworth System;" H. T. King, Fremont, "Crown with Intradental Band;" C. E. Woodbury, Council Bluffs, "Method of Articulating Crown Bridges;" H. N. Kelly, Omaha, "Gold Crown with Carved Cusps;" J. W. Manker, Red Oak, Iowa, "Original Method of Making Gold Crown, from a Cast and Without a Bite;" P. T. Barber, Chadron, "Articulating a Full Set of Teeth;" T. J. Hatfield, York, "Swaging and Fitting Aluminum Plate and Articulating Set of Teeth by Bonwill System;" A. P. Johnson, Omaha, "Articulating Full Set of Teeth;" A. S. Billings, Omaha, "Demonstration of Use of Plastic Rubber;" T. B. Heckert, Wayne, "A Partial Rubber Plate Without Pressure;" A. L. Nixon, Stanton, "Articulating Set of Teeth." Evening, 8 P. M.: Report of Supervisor of Clinics. Discussion of clinics. 8:30 P. M.: A. H. Hipple, Omaha, "Management and Care of Children's Teeth." Discussion opened by A. W. Nason, Omaha.

Wednesday, 9 A. M.: T. B. Heckert, Wayne, "Practical Case of Fracture of Inferior Maxilla—Reduced by Angle's Method of Bands and Copper Wire Ligatures;" discussion opened by H. W. Shriver. A. O. Hunt, Chicago, will present "Models and Patient Showing Result of Treatment of Fracture." 10 A. M.: W. C. Davis, Lincoln, "Extraction of Temporary and Permanent Teeth;" discussion opened by A. O. Hunt. 11 A. M.: J. C. Whinnery, Omaha, "Practical Methods of Treatment;" discussion opened by H. J. Cole. Afternoon, 2 P. M.: E. K. Wedelstaedt, St. Paul, Minn., "Practical Demonstration and Clinic with Amalgam." Amalgam Clinic: J. S. McCleery, Beatrice; E. A. Meservey, Kearney, "Sup. Cavities Prepared by Black's Method;" P. T. Barber, Chadron; F. J. Robertson, Wilber; A. H. Corbut, Madison. 4 P. M.: Unfinished business and election of new members. 4:30 P. M.: G. M. Byrkit, Red Oak, "Practical Facts Relative to Weld's Clinics Metallic Method of Root Treatment." Evening, 8 P. M.: C. N. Johnson, Chicago, "Cavity Preparation." 9 P. M.: J. W. Pucket, Geneva, "Dentistry in Public Institutions."

Thursday, 9 A. M., Gold Clinics: C. N. Johnson, Chicago, H. J. Cole, Norfolk, H. W. Nason, Omaha, "Using Flower's New Process;" J. C. Whinney, Omaha, "Using Hand Mallet;" D. P. Sims, "Contour Filling, Mechanical Mallet, Power Supplied by Water Motor;" H. W. Shriver, Omaha, "Moss Fiber Gold with Automatic Mallet"; J. H. Wallace, Omaha, "Approximal Cavity, using Perry Separators;" L. P. Davis, Lincoln, "Platinized Gold with Power Mallet;" W. H. Latey, Omaha, "Using Nicoll's Improved Soft Gold;" H. J. Alspaugh, Omaha, "Moss Fiber Gold with Hand Pressure;" table clinic showing successive steps of operation. Afternoon, 2 P. M.: E. K. Wedelstaedt, St. Paul, "Demonstration of Manipulation of Cement;" C. L. Hungerford, Kansas City, "Demonstration of Immediate Pulp Extraction;" F. N. Connor, Omaha, "Painless Removal of Pulp, using Chloride of Ethyl and Cocaine;" A. N. Corbut, Madison, "Painless Pulp Treatment;" G. M. Byrkit, Red Oak, "Filling Putrescent Canals by Weld's Method." 4 P. M.: Report of Supervisor of Clinics; Discussion of Clinics; Unfinished Business. Evening, 8 P. M.: E. H. Angle, St. Louis, "The Typical American Dental Deformity and its Treatment."

Friday, 9 A. M. Election of Officers. Selection of next place of meeting. Discussion.

Hotel accommodations may be had as follows: Paxton Hotel, 14th and Farnam, $2.50 to $3.00 single; $2.00 two in one room. Millard Hotel, 14th and Harney, single, $2.00; two in one room, $2.50 to $3.00. Merchants Hotel, Farnam, between 15th and 16th, single, $2.00 to $2.50; two in one room $1.50.

ILLINOIS STATE DENTAL SOCIETY—PROGRAM.

Annual meeting at Springfield, May 8, 9, 10 and 11.

1. President's Address, Dr. R. N. Lawrence, Lincoln, Ill.
2. Report of Committee on "Dental Science and Literature," Dr. A. W. Harlan, Chicago, Ill.
3. Report of Committee on "Dental Art and Invention," Dr. H. J. Goslee, Chicago, Ill.
4. "Gold Crown with Solid Carved Cusps," Dr. J. E. Nyman, Chicago, Ill.
5. "A Few Thoughts on Prosthetic Dentistry," Dr. W. W. Moorehead, Aledo, Ill.
6. "Simple Methods of Treatment of Fractures of Lower Jaw," Dr. W. A. Johnston, Peoria, Ill.
7. "Calcification a Controlling Factor in the Treatment of the Teeth," Dr. Grafton Munroe, Springfield, Ill.
8. "Habits Incident to the Dental Profession," Dr. G. W. Entsminger, Carbondale, Ill.
9. "Electricity Through the Ages and Its Value with regard to Dentistry," Mr. G. E. Lob, M. E., Chicago, Ill.
10. "Pyorrhea Alveolaris, So-Called," Dr. A. H. Peck, Chicago, Ill.
11. "Operative Dentistry:
    A. "To Emphasize Some Things in Operative Procedures," Dr. D. M. Cattell, Chicago, Ill.
    B. Paper. Subject to be announced, Dr. Edmund Noyes, Chicago, Ill.

    It is expected that Dr. Black will open the discussion on both these papers. The discussion on this subject not to be confined strictly to the papers read.
12. "Antiseptics," Dr. Elgin MaWhinney, Chicago, Ill.
13. Report of Supervisor of Clinics, Dr. J. E. Hinkins, Chicago, Ill.

CLINICS BEFORE THE ILLINOIS STATE DENTAL SOCIETY.

1. Wm. Gilmer Clark, Chicago. Exhibit—Electro-plating apparatus.
2. P. A. Pyper, Pontiac. Contour filling, platinum and gold, central incisor.
3. J. O. Brown, Chicago. Contour filling, Watts' crystal gold.
4. J. N. McDowell, Chicago. Orthodontia, models and regulating appliances.
5. F. E. Roach, Chicago. Use of rubber teeth in crown and bridge work.
6. W. W. Tobey, Danville. Contour filling, Williams' untrimmed gold.
7. A. J. Elmer, Rochelle. Pyorrhea alveolaris.

8. Truman W. Brophy, Chicago. Surgical clinic.
9. W. F. Green, South Evanston. Table clinic. Root, canal filling, eucalypto-percha. (Constant S. S. W.)
10. Geo. W. Cook, Chicago. Surgical treatment of pyorrhea.
11. Lee K. Stewart, Chicago. Continuous gum case.
12. J. E. Nyman, Chicago. Carving solid gold cusp.
13. W. V-B. Ames, Chicago. Some cements under the microscope.
14. J. R. Rayburn, Fairbury. Gold filling. Compound cavity in bicuspid, Power's engine mallet.
15. M. L. Hanaford, Rockford. Gold filling. Distal surface of cuspid.
16. J. W. Gluesing, Moline. To be announced.
17. G. A. Miller, Chicago. Seamless gold crown carved cusps.
18. W. F. Fowler, Chicago. Porcelain inlay.
19. Robt. Good, Chicago. Pyorrhea alveolaris.
20. A. F. James, Oak Park. Immediate regulation.
21. C. N. Thompson, Chicago. Porcelain inlay.
22. F. F. Fletcher, St. Louis. To be announced.
23. L. S. Tenney, Chicago. Gold restoration, anterior tooth.
24. F. V. Yorker, Chicago. Gold filling.
25. L. W. Nevius, Chicago. The use of nitrous oxide and extracting teeth.

J. E. HINKINS,
Supervisor of Clinics.

The thirtieth annual meeting of the Kentucky State Dental Association will be held in Louisville, beginning May 29, 1900, at 9 A. M., and continuing three days.

PRELIMINARY ANNOUNCEMENT—PAPERS.

1. "Some Advantages of Noncohesive Gold, Tin-Gold and Tin Considered from an Operative and Prophylactic Standpoint," Dr. J. R. Clayton, Shelbyville, Ind.
2. "Amalgam. Its Preparation, Instruments and Instrumentation in Filling Teeth." Illustrated by Models, Dr. W. E. Harper, Chicago, Ill.
3. "Oral Manifestation of Syphilis," Dr. T. C. Evans, Louisville, Ky.
4. "X Rays in Dentistry," Dr. L. E. Custer, Dayton, Ohio.
5. Subject to be given, Dr. S. A. Donaldson, Lexington, Ky.
6. "Malaria as a Cause of Secondary Hemorrhage in Extraction of Teeth," Dr. J. P. Shaw, Russellville, Ky.
7. "Orthodontia." Illustrated by Lantern, Dr. C. DeWitt Lukens, St. Louis, Mo.
8. "Orthodontia," Dr. E. D. Rose, Bowling Green, Ky.
9. "One of the More Especial Duties of the State Dental Association," Dr. J. L. Sutphen, Greensburg, Ind.
10. "Care of Deciduous Teeth," Dr. J. F. Meadors, Columbia, Tenn.
11. Subject to be given, Dr. I. B. Howell, Paducah, Ky.
12. "Dental Education," Dr. Theo. Menges, Chicagc, Ill.
13. "Practical Dentistry," Dr. E. T. Barr, Bowling Green, Ky.
14. "Troublesome Cases in Bridge Work via Converging Teeth, Broken Facings, Mal-occlusion, etc.," Dr. U. D. Hulick, Cincinnati, Ohio.

15. "Teeth," Dr. W. S. Williams, Uniontown, Ky.
16. "Metallo-Plastic Work and Backing Porcelain Teeth with Gasoline," Dr. R. C. Brophy, Chicago, Ill.
17. "The Status of Mechanical Dentistry; Is It to Become a Lost Art?" Dr. O. G. Wilson, Franklin, Ky.
18. "Disease of the Antrum," Dr. Adolph O. Pfingst, Louisville, Ky.
19. "The Reproduction of Gum Tissue in the Interproximal Space," Dr. Geo. T. Carpenter, Chicago, Ill.
20. Subject to be given, Dr. J. H. Baldwin, Louisville, Ky.
21. Subject to be given, Dr. A. H. Peck, Chicago, Ill.
22. "The Importance of Proper Physical Diagnosis in the Practice of Dental Surgery," Dr. J. Y. Crawford, Nashville, Tenn.
23. "Gold Filling vs. Gold Crowns," Dr. W. T. McLean, Cincinnati, Ohio.
24. "Antiseptics and Disinfectants," Dr. Geo. W. Cook, Chicago, Ill.
25. "What Efforts Are We Using to Better the Profession?" Dr. M. H. Dailey, Paris, Ky.
26. "Cast Aluminum Dental Plates," Dr. Willard Streetman, Cleburne, Tex.

CLINICS.

1. "Oral Surgery," Dr. Wm. H. G. Logan, Chicago, Ill.
2. "A Method of Backing up Porcelain Crowns," Dr. E. D. Rose, Bowling Green, Ky.
3. "Removal of Dental Pulp Surgically," Dr. J. Y. Crawford, Nashville, Tenn.
4. "Soft Gold Fillings," Dr. P. A. Pennington, Louisville, Ky.
5. "Metallo-Plastic Work and Backing Porcelain with Gasoline," Dr. R. C. Brophy, Chicago, Ill.
6. "A Compound Gold Filling, Crown and Posterior Proximal with Matrix. A Combination of Old and New Methods," Dr. B. Oscar Doyle, Louisville, Ky.
7. "Porcelain," Dr. H. J. Goslee, Chicago, Ill.
8. "Immediate Nerve Extraction with Eucaine by Pressure and Root Filling," Dr. S. A. Donaldson, Lexington, Ky.
9. "Orthodontia," Dr. C. DeWitt Lukens, St. Louis, Mo.
10. "De Trey's Gold," Dr. C. K. Runyon, Jeffersonville, Ind.
11. "Orthodontia and Exhibit," Dr. Frank L. Smith, Chicago, Ill.
12. "Contour Fillings with Soft Gold on Models," Dr. G. S. Junkerman, Cincinnati, Ohio.
13. "The Use of Snow Face Bow in Taking a Base Plate Bite," Dr. J. Q. Byram, Indianapolis, Ind.
14. Subject to be given, Dr. H. B. Tileston, Louisville, Ky.
15. "Noncohesive Gold, Tin and Tin-Gold on Models," Dr. J. R. Clayton, Shelbyville, Ind.
16. "A Few Cases in Orthodontia," Dr. J. S. McCurdy, Ft. Wayne, Ind.
17. "Soft Gold Filling," Dr. Henry Pirtle," Louisville, Ky.
18. Subject to be given, Dr. W. E. Grant, Louisville, Ky.
19. "Combination Gold Filling," Dr. E. L. Sanders, Louisville, Ky.
20. "Open Faced Crowns," Dr. B. G. Reese, Louisville, Ky.
21. "Extraction of Teeth Under Local Anesthesia," Dr. F. R. Wilder, Louisville, Ky.

The following gentlemen will give clinics, subjects to be stated:

Dr. G. C. Roberts, Chicago, Ill.
Dr. F. L. Klingman, Louisville, Ky.
Dr. W. W. Barnes, Louisville, Ky.
Dr. A. B. Weaver, Louisville, Ky.

Twelve firms have secured space for displays.

The committee, in addition, have under arrangement other important clinics and are making strenuous efforts to make this the best meeting ever held in the State and well worthy of your attendance.

Members of the profession are cordially invited.

F. I. GARDNER, D. D. S.,
213 W. Chestnut St. *Secretary.*

IN MEMORIAM.

DR. PLINY I. LAWRENCE.

WHEREAS, our friend and loved brother, Dr. Pliny I. Lawrence, has been removed from us by death, and as we are desirous of expressing our sorrow for the loss of one who has been with us as a member of the Chicago Dental Society since 1883, be it

Resolved, That in the death of Dr. Lawrence we have lost a valued friend and faithful fellow-worker. Dr. Lawrence was a man of unquestioned ability and of high ethical standards in the practice of his profession. His life was clean and he was a worthy example to us all. We are grateful that such a man has lived, but we bow with submission to the law of nature.

Resolved, That these resolutions be inscribed on the records of this society and printed in the dental journals; and that a written copy be sent to Mrs. Lawrence as a mark of our sincere sympathy and esteem.

(Signed)
E. J. PERRY,
J. H. WOOLLEY,
J. G. REID,
Committee.

THE

DENTAL REVIEW.

VOL. XIV. CHICAGO, MAY 15, 1900. No. 5

ORIGINAL COMMUNICATIONS.

CONSTITUTIONAL EFFECTS OF AMALGAM FILLINGS AND RED VULCANITE PLATES UPON THE HUMAN ORGANISM.*

BY H. W. PIERSON, B. S., M. D., CHICAGO, ILL.

PROFESSOR OF THEORY AND PRACTICE, DUNHAM MEDICAL COLLEGE, CHICAGO.

Your invitation to prepare and read a paper upon this mooted question has been interpreted by me to mean a desire on your part for a definite statement of the rule governing the determination of effects produced by foreign substances upon the human organism, as held by the homeopathic branch of the medical profession.

Man has a love for the truth; time will not permit a personal investigation of every question, and consequently we are compelled to accept the opinions of others without the opportunity of carefully testing and determining the truth or falsity of same. To a large degree, man is controlled by his environment. The prevailing influence of those with whom he associates help, and, to no small degree, mould the individual opinion. It is a hopeful sign, therefore, when men possessing honest differences of opinion are willing to come together for an impartial investigation with reference to the merits of any particular question.

We recognize the fact that three men out of every four who may listen to us this evening have failed to see any deleterious effects in their practice from the indiscriminate use of mercury in its various forms for the preservation of the teeth; but it is not among the impossible things that this failure to detect or to recognize that possible injury has been due to the fact that their observation has been limited to the visible material effects and that the opportunities for investigation in each individual case may have been restricted to infrequent consultations with particular reference to material defects; while the family physician with his frequent opportunities for coming into close relations with these same patients has had better facilities and greater reasons for detecting the presence of some morbific agent.

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*Read before the Chicago Dental Society.

It will be our purpose, therefore, to direct your thoughts along a line of investigation that, to a certain degree, will enable you to select the cases that will suffer the least disturbance from the action of these substances.

It is within the memory of almost every one present when the dentist was looked upon as a mechanic, nothing more and nothing less; and it is only within the last quarter of a century that the dental profession, as a body of men, have realized the wonderful possibilities opening up for their specialty in medicine. By a process of evolution they have passed through the preliminary stages until it is recognized as one of the legitimate functions of their profession to take into consideration all of the causes that may contribute to any imperfection in the natural development and preservation of the teeth.

To-day it is not sufficient that the dentist have manual dexterity, but he must have such expert knowledge of the relationship existing between the process of mastication and the functional activities of the different organs of the body, complications arising from chemical action and reaction, susceptibility to the presence of morbific agents from without, etc., as will make him master of his art and secure for his specialty a standing equal to that of other specialties in medicine. In short, his knowledge of the functional activities of life itself should be as comprehensive as that of any other specialty in medicine. It is only when he shall have attained to the mastery of these many and varied lines of investigation that he will have reached the ideal position of the modern dentist. In this process of evolution rapid strides have been made, and many substances which were looked upon as harmless can find no advocates at the present time. In medicine, the persistent use of mercury covers a history measured by centuries. It was considered an indispensable agent for the treatment of the sick. To-day its administration is restricted to a very limited sphere, and even in this limited sphere a very small amount is found to produce better and greater results than could be obtained through the administration of the ponderous doses of the past.

So with the dentist, investigation must be along the lines of maximum good with a minimum of evil; and substances employed for the repair of the ravages of time and ignorance must be brought as near the constituency of the original substance employed by nature as the art of man can fashion. So the time will come when the dentist will work hand in hand with the physician for the conservation of health instead of being content with the inferior position of the mechanical repair of the ravages of disease. This leads us up to a consideration of the most important question before us to-night.

What is disease ? Would you call a deposit of tartar upon the teeth a disease ? Or a deficient proportion of carbonate of lime in the dental substance a disease ? Or the destruction of the proximal surface of a tooth a disease ? Or are we not simply looking at the local manifestations of some impairment of the functional activities of the body ? You know that some of these conditions may proceed from a disturbance in a remote part of the body, and that the cure of the same may be brought about by the restoration of the normal activities of that part. The "Century Dictionary" defines disease as "Any deviation from the normal condition of any of the functions of the body." Huxley defines disease as "A perturbation of the normal activities of any of the functions of the body." Gould defines disease as "A condition of the body marked by inharmonious action of one or more of the various organs." We would go a step further and still carry out the meaning of the above, by defining disease as a disturbed relationship between the vital force and the organism over which it has control.

You will see that the tendency has been to mistake the effect for the cause, and to be content with the removal of the effect regardless of the consequences that logically must follow.

Let us again consult authorities with reference to the meaning of vital force, because honest differences of opinion often arise from a misunderstanding of the real meaning of the word or term employed.

The "Century Dictionary" defines vital force as "The animating force in animals and plants." Gould goes a little further and says it "Is the energizing force on which individual life depends." Hahnemann, the vitalist and Father of Homeopathy, gave this comprehensive definition: "It is that immaterial, automatic energy which animates the material body of the organism, rules with unbounded sway and keeps all parts in harmonious operation as regards both sensation and function."

You will readily see from this that our definition of disease is in perfect harmony with that of the above authorities. The only reason why there has been any difference of opinion upon these matters is because we are inclined to let our investigations stop with the material substance, and refuse to look beyond for the cause which animates all living organisms.

It will be conceded by every one present that material substance, in and of itself, does not possess the property of action. It must be acted upon. It is equally self-evident that the energy or force which permeates the material substance must be the cause of all activities. It follows as a logical sequence that all chemical action and reaction in the human organism is due to the presence of some vital influence absolutely independent of the primary elements which constitute the substances thus brought into intimate relation. A corollary to this statement explains the fact that all organized matter separates into its original elements with the disappearance of the animating force or energy that was instrumental in bringing about the combination. A third statement may not come amiss at this point, which is that all growth and development is dependent upon the power of this vital force or energy within the individual cell to appropriate from the common supply of nutritive material elements as may be necessary for the repair of all defects. Anything that will interfere with the appropriation of this new material will naturally disturb the harmony which exists between the activity of this cell and the rest of the organism.

This brings us to another statement of fact that every substance exerts its peculiar influence upon other substances only through the medium of the vital force. You speak of chemical action and reaction, which is only another name for this same manifestation. Especial emphasis is put upon this statement, and you are to keep in mind throughout this discussion the one fact that all influence, all effect, all action is dependent upon the presence of this vital force.

The natural, normal function of the vital force is to so act upon all material substances coming within its influence that new material may be prepared in Nature's laboratory for the maintenance and development of the functional activities of the organism. This leads to the inevitable conclusion that any substance which cannot be prepared for assimilation must necessarily by its very presence act as a disturbing influence upon the economy of nature. In other words, its presence tends to the production of disease.

How are we to determine the deleterious effects of any substances? There can be but one answer to this question, and that is to bring that substance into close relations with the vital force of the healthy or normal organism, and note the result. Fortunately mercury in all its forms has been subjected to the most rigorous applications of this test. We are therefore able to give you a complete picture of the action of quicksilver, which forms the base of amalgam, upon the human organism, and as we present this picture to your consideration we venture to make the assertion that there is not a man before us who will not recall as a result of his own personal experiences many instances in which similar effects have been noted for which he was at a loss to assign a satisfactory cause. Mercury has a peculiar affinity for the mouth and its contents; consequently any excess of the drug is likely to leave its strongest impression upon the same.

Among the most important effects of mercury in the mouth will be the following: The gums are swollen, spongy, frequently bleeding at the slightest touch. They may have a bright red margin, or they may be covered with thin white patches. The upper margin may have a torn, ragged appearance, and as a result of the swollen, spongy condition of the tissue are frequently separated from the teeth. You may see them at a time when the aggravated condition has subsided, and in place of the swollen character there may be actual atrophy.

The teeth become loosened in their sockets, almost drop from the mouth; especially is this true with reference to the molars. The lower incisors have a chipped, irregular, serrated appearance with a brown spot in the center of the surface. Caries begins in the crown of all except the incisors. The teeth are painful to touch, and sensitive to both heat and cold. There is an aggravation of all painful conditions during the night. The pain is a sort of grumbling, tearing, jerking, pulselike, seemingly at the root of the tooth, during the day, gradually increasing during the night.

The tongue may be swollen, red or white, inclined to be tremulous and show the imprint of the teeth on the edges. There may be small superficial ulcers on the tongue. This characteristic will be noted throughout the body—that the ulcers are superficial, irregular and spreading in character. Speech is difficult on account of the tremulous, swollen condition of the tongue.

The salivary glands are swollen and very painful, the opening of Stenson's duct being swollen, white and frequently ulcerated. Aphthæ may be present in various places throughout the mouth, inclined to be bluish red in color, and spongy in character. These spots change to a dirty whitish color, but as the mucous membrane breaks down an ulcer with an irregular flat surface presents. With this inflammation of the salivary glands there will be found an excessive amount of saliva, sometimes offensive in character, but generally of a sweetish taste.

There is a tendency for the inflammation beginning at the roots of the teeth to extend into the periosteum of the jaw, resulting in a severe and obstinate periostitis. This may extend to the degree of actual necrosis, resembling in this respect the action of phosphorus. With a subsidence of this inflammation we frequently find atrophy of the alveolar process. Another sequence not a rare appearance is that of partial ankylosis of the jaw. You will find a tendency to a form of hypochondriasis in which they imagine themselves possessed of all manner diseased conditions; believe they will actually go insane if the dentist or physician does not give them immediate relief. This hypersensitiveness is a characteristic of the drug. The patient is easily agitated, inclined to talk hurriedly. You may fail to notice any pathological changes within the mouth but will notice that their speech is very hurried—seems as though they can hardly get one word out fast enough to give place for the next one to follow. There is a feeling of anxiety and apprehension, a feeling as if they could not endure the thought of suffering. In place of this hurried, senseless talking, they may go to the other extreme, and be very slow in answering questions. Almost give the impression of mental weakness. This condition is more frequently associated with that physical condition noted by atrophy of alveolar process, of the gums, etc.

Up to this point in the discussion of this question the effect has been measured by the power of the disturbing agent alone, but now we come to an equally important element, the resistance offered by the organism to morbific agents--susceptibility. The word speaks for itself. No two individuals possess equal power for aggressive work, or offer equal resistance to the attacks from without. Every one is a law unto himself, and it therefore becomes imperative for us as conservators of public health to know how to gauge the vitality of each individual coming under our protection, so as to leave them in a better condition by reason of our ministrations than they were. Three factors contribute to this susceptibility: First, an impairment of the vitality of the organism transmitted from parent to child; second, an environment, physical or mental, that is constantly using up the reserve strength or resisting force of the body; third, a willful or ignorant violation of nature's laws. Perhaps to these a fourth factor might be added, namely, ignorance on the part of medical advisers with reference to the deleterious effects of dissimilar substances in the form of drugs in the treatment of the sick; and in this fourth group we would place the use of mercury. It is a notorious fact that for centuries calomel and other preparations of mercury has been given in massive doses, indiscriminately, for almost every conceivable disease, and the effect produced therefore is present in many of the descendants of these unfortunate victims of crude medical practice. This explains, to a large degree, the reason why a protest has gone forth against the use of amalgam fillings for the preservation of the teeth and red vulcanite as a base for the retention of artificial dentures. Not every constitution requiring the employment of a filling or an artificial denture is susceptible to the action of these substances, but the constant exposure to their influences will be inevitably followed by characteristic results. We will be met at this point with the assertion that the amount of mercury employed is so small and the exposure so slight that the effect is purely hypothetical; to which we would reply that the effects presented in this paper, with the exception of the necrosis and ankylosis of the jaw, were produced through the employment of infinitesimally small amounts of quicksilver. We therefore feel it incumbent upon us to urge such investigation as will lead to the selection of some substance or compound that will prove of equal durability with a minimum amount of evil.

1. Truth is invincible and sure to prevail.
2. Honest differences of opinion only serve to demonstrate the presence of error and give evidence for seeking truth.
3. The true scientist denies nothing until he is subjected to repeated tests.
4. Disease is not always attended by anatomical change in tissue.
5: Every substance exerts a peculiar influence or effect upon every other substance with which it comes in contact.
6. The degree of permanence of the effect depends upon two factors, namely: quantity or quality of force expended, and quantity or quality of resistance offered.
7. Everything that finds no counterpart in the human organism tends by its presence to disturb the functional activities of the organism. The degree of disturbance measures the extent of the disease manifestations.
8. Constitutional effect of any substance is determined by testing the same upon a healthy organism.
9. Degree of effect depends upon the susceptibility of the individual.
10. Mercury, in any form, being inimical to the human organism, amalgam and red vulcanite must exert a deleterious effect and consequently should be substituted by something possessing less pernicious effects.

TREAMENT OF ACUTE AND CHRONIC ALVEOLAR ABSCESS.*

BY A. W. HARLAN, M. D., D. D. S., CHICAGO, ILL.

It is not so novel an appearance to find the above theme for an essay to-day as it was twenty-five years ago, still the subject has the same interest for us that it had then. I had the honor to read a paper on the above subject before this society in February, 1874, when it was much smaller than it is at preeent. As I look around this room to-night I find very few of the faces here now that were present on that occasion, still I believe that we all have the same appreciation of an acute alveolar abscess that the smaller audience had at that remote date.

An acute alveolar abscess is a collection of pus that has not made its exit into the world, the mouth or opened on the face or neck; as soon as it is opened, or opens spontaneously, it is an abscess with an outlet, later to be called a fistulous outlet. This is true of a chronic abscess when it has no exit through a root canal.

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*Read before the Chicago Dental Society.

An acute alveolar abscess follows the death of the pulp and its solution in the canal or as a result of infection through the root or from the blood current. The preliminary treatment of an acute abscess is to hasten suppuration by local and constitutional remedies; local, heat and stimulants; constitutional, calcium sulphide one-tenth grain every ten minutes and hydrochlorate of quinine one grain every hour. The only way to treat an acute abscess is to open it and give exit to the pus. As soon as the acute inflammation has subsided the root canal must be cleansed and disinfected and the abscess tract injected with some substance capable of cleansing it at first, and later it should be stimulated or coagulated so that the root canal may be filled at the same sitting. It needs no argument to convince the most skeptical that if this is done thoroughly the fistula will be obliterated. No prolonged treatment is necessary.

The principal trouble with most cases is failure to drain an acute abscess and failure to disinfect the abscess cavity at the same time. Usually a bichloride solution 1 to 2,000, or a boracic solution 1 to 24, will do. Even H_2O_2 may be used if one-half grain of bichloride is dissolved in one ounce before injecting it.

Any good disinfectant may be pumped through the root after it is cleansed from all debris, pulp tissue, etc. The rubber dam should be used whenever practicable, as it will facilitate the operation. The remedies used for injecting recent acute abscesses are supposed to be germicides and coagulators. My own preference is for such agents as will effectually cleanse and stimulate the tract or fistule. These are dilute carbolic acid, diluted with alcohol, boroglyceride fifty per cent, zinc sulphate twenty-five per cent, five per cent sulphuric acid dissolved in peppermint water. These are all good stimulants. The results are satisfactory.

A chronic alveolar abscess presupposes an abscess with an outlet through the root or gum, or into some cavity, or even externally on the face or neck. If it opens into the antrum or the nose, and if you wish to save the tooth the fistule must be turned into the mouth by cutting. This is true even if it opens on the face.

In a chronic case we may have caries or necrosis around the apex, or even a calcular deposit on the apex of the root. In the latter event cutting or gouging must be resorted to. When only slight caries or necrosis is present an injection of hydrochloric or sulphuric or trichloracetic acid seven per cent in water will melt the tissues around the apex, if held in place for a few minutes. Time must be allowed before the second treatment. (I prefer not filling the root at the first sitting, as the root canal is a good funnel through which to inject medicines.)

As bones are not dissolved by oils, carbolic acid, zinc preparations, bichloride or any coal tar compound, H_2O_2, boracic acid or hot water, I do not use such agents for the first treatment. It is a safe plan to wait two weeks after injecting an old abscess with acids before trying a second treatment.

It is essential to have the roots free of all old fillings, cotton, wood, wire, pulp tissue, etc., even if it consumes hours in so doing. I have spent several hours in removing bits of attempted root fillings, and stopping holes drilled in the side of roots by those who always enlarge root canals with unerring certainty!

I generally fill the root at the end of the second visit, unless there are unfavorable conditions of health, or local environments. I do not change dressings in old chronic cases daily or weekly. I seal them in firmly at the termination of the first treatment. I do not depend on any drug as a sure cure for abscess. I recognize that in some cases little or no treatment is necessary; in others that the whole fistulous tract must be burnt out or cut out, and a fresh wound made.

I am in favor of packing a large pouch with aristol or betanaphthol and eucalyptol, where surgical intervention was necessary above or around the apex of a root. There is hardly anything so interesting to me as the handling of an abscess of the chronic variety. (I understand that I am not to touch upon the blind abscess or cold abscess, so I leave it out of consideration.)

A chronic abscess may not yield to treatment at times until a small portion of the apex of the root has been excised. I have records of such cases treated during many years, and only a few of them were failures, usually due to subsequent loosening of the teeth. All chronic abscesses are not amenable to treatment from lack of nutrition to the cementum surrounding the whole root.

No chronic abscess once cured remains so unless the root be well filled at the apex. A root filling should close the apex mechanically, not medicinally.

The results of treatment are satisfactory if the operation is not done hastily. Very few cases are seen by the same operators after twenty or twenty-five years, and many are led to believe that their particular pet operation is the only sure method when done quickly or immediately. My own failures have been due to two causes—faulty treatment and lack of coöperation on the part of the patient. A few failures may result from specific disease and general impoverishment of the whole system, but these are not numerous. Failure usually results from haste, imperfect disinfection and imperfect root filling.

TREATMENT OF BLIND "ALVEOLAR ABSCESS AND TEETH CONTAINING DEAD PULPS THAT ARE DORMANT."*

BY ELGIN MAWHINNEY, D. D. S., CHICAGO, ILL.

Pulps of teeth die from a variety of causes; among the most common are simple irritation from thermal changes, attrition erosion, caries, and traumatisms, all from without, calcific deposits, lowered vital functioning, and other systemic disturbances from within.

Every practitioner constantly meets with teeth whose vitality has been lost from causes that we do not understand.

That teeth sometimes lose their vitality and give no disturbance for years is a fact well known to all. Why this is so cannot always be accounted for. Sometimes the reasons can easily be understood. When a pulp dies it remains comparatively harmless until it becomes infected by microörganisms—for without them we will have no putrefaction. If a tooth has no external opening into the pulp canal, then microörganisms must enter—if they enter at all—through the apical end, and their only way of getting there is through the medium of the circulation. The blood does not normally contain microörganisms, therefore, it is only by accidents, such as functional disturbances of nutritive processes, that they are enabled to live therein. When they gain entrance into the system in sufficient quantities and conditions are favorable they seem to immediately seek out dead or dying matter in which to grow and multiply. This explains why many teeth containing dead pulps,though remaining quiescent for years, suddenly develop acute conditions ending in acute and finally in chronic alveolar abscess.

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*Read before the Chicago Dental Society.

When microörganisms enter a pulp canal which is filled with dead matter we do not always have appreciable physical disturbances. In many cases we find foul smelling root canals when there has been no disturbance, even though the canals were closed. The understood reasons for this are three :

1st. The animal cells surrounding the part affected may be sufficiently active to literally digest the microörganisms and hold in check their putrefactive process.

2d. The system may be able to readily carry off the products of putrefaction.

3d. There may be present in the blood certain antitoxines which reduce the activity of the putrefactive process or neutralize its effects.

These reasons explain why teeth containing imperfect root filling remain quiet for years and other cases give occasional slight disturbance which passes off and remains quiet for another period; then again the trouble is repeated and again ceases, and so on for years and years.

Why is it, when we open into the pulp chamber of teeth containing dead putrefactive matter, that we so often start up violent acute conditions ? Why is it that we sometimes stir up a veritable "hornets' nest?" I can only answer in part : We disturb the balance of power existing between the putrefactive process on one side, and the animal cell antitoxines, or systemic conditions, on the other. We do this in three ways : By introducing fresh infectious material, or by forcing septic material through into the apical space, or by introducing some agent that will interfere with the local animal cell activity.

There still remains unexplained many disturbances that follow the opening of certain cases. There is room for further study on these cases.

In certain cases after the death of the pulp, the apical foramen becomes closed either by deposit of cementum or by the peridental membrane growing tightly over it. All that is needed in treatment of these cases is to remove all dry material, moisten walls with a mild disinfectant, dry and fill immediately.

In a large number of cases examined every case containing moisture contained also pyogenic germs.

In those cases where there is no tenderness of tooth or tissue adjacent to the apex of the root, and no opening into the pulp chamber, after adjusting the dam, and disinfecting the tooth externally and surrounding tissues, I drill into the tooth almost, but not quite to the pulp chamber, and seal therein a mild penetrating antiseptic and let remain forty-eight hours. The agent I use is :

Eucalyptus oil	1 part.
Cloves oil	2 parts.
Alcohol	4 parts.

At the next sitting I enter the pulp chamber at its horn, using a small sterilized bur, cutting in such a way as not to produce the slightest pressure upon the contents of the canal; then I lay a piece of cotton containing some of the above solution over the opening partly to disinfect and partly to absorb the liquid present; then I carefully enlarge the opening and draw off the contents of the canal, which can be done nicely by the careful use of the hypodermic syringe, and dry thoroughly; next I lay a potent diffusible germicide and seal; care should be taken not to produce the slightest pressure. I allow this to remain thirty-six hours when the case is again opened, now thoroughly—canal mechanically cleaned, reamed out and dried thoroughly. A non-irritating disinfectant is then introduced clear to the apex of the root, and volatilized by heat, then more introduced, sealed and allowed to remain a week or longer. At the next sitting if canals are sweet and dry, and there has been no conscious disturbance, the roots are dried and filled.

In cases where there is tenderness to pressure, I open immediately as before described, remove as much moisture as possible, and lay into the pulp chamber a potent germicide, seal with cement and drill a small "vent hole" through the cement and dismiss the case for twenty-four hours, after which I cleanse and dry the canal as before described. If tenderness continues I use creosote and iodine for second treatment, carried well up to the apex, seal, and allow to remain a week. In anterior teeth care must be taken not to introduce so much of this agent as to discolor the teeth. I wish to recommend this agent for cases of abscess in syphilitic patients. If tenderness now has disappeared I dry and fill immediately. If tenderness continues, however, as sometimes occurs, I treat with twelve per cent sulphuric acid, forcing carefully a little through the apex, allow to remain twenty-four hours, and follow with mild antiseptic and dismiss for two weeks, when, unless a large absorption exists around the apex, the root may be filled. The sulphuric acid is recommended for the double purpose of dissolving any slight uneven, sharp points of foreign deposits on the root and destroying the so-called pyogenic membrane existing about the apex.

In cases where considerable absorption has occurred I invariably make a generous opening through the gum, curette thoroughly, pack with antiseptic gauze and treat as a chronic alveolar abscess with fistulous opening.

In those cases where the pulp chamber has been open for some time, by caries or otherwise, I usually wash it out with warm antiseptic water, then dry thoroughly and proceed as in the last case identically.

Since I have been following the methods here outlined, I have rarely had any acute disturbance occur. When such disturbances do occur the treatment must be the same as indicated for acute alveolar abscess, a description of which does not come within the subject of this paper.

POINTS THAT MUST BE REMEMBERED IN THE MANAGEMENT OF THESE CASES:

1. Diagnose your case carefully.
2. Always adjust the rubber dam.
3. Have your instruments sterilized and your hands aseptic.
4. Always disinfect the surrounding area before opening a tooth.
5. Never allow anything to enter a root canal but what you intentionally put there.
6. Many germicides destroy animal cell life.
7. Do not use such germicides except where such irritating action is desired.
8. Use as few treatments as possible to bring about recovery.
9. In sealing medicaments in a tooth do not produce pressure.

10. Remember that the tissue upon which you operate is a part of the human economy, and the systemic well-being of your patient will have much to do with your success.

Putrescent Pulps and Their Treatment.*

By A. H. Peck, M. D., D. D. S., Chicago, Ill.

As the subject allotted to me in connection with the exercises of this evening, and as printed in the membership and program book, deals with medicinal agents best suited for the successful treatment of cases of putrescent pulps, the first thought that naturally presents is: What constitutes a state of putrescence; what changes in the parts involved are necessary that this condition may be brought about, and what elements, if such we may term them, are evolved and necessary to be destroyed?

Gould, in defining this condition, says: "Putrescent, undergoing putrefaction." "Putrescence, the state or process of putrefaction." Thus, before we can have a clear understanding of this condition, we must look to the meaning of "putrefaction." In defining this term, he says: "The decomposition of nitrogenous organic matter under the influence of microörganisms and accompanied by the development of disagreeable odors due to the evolution of ammonia and hydrogen sulphide."

This is a good statement of the elementary facts, but, to my mind, Dunglison, in defining this term, putrefaction, gives us something better, more comprehensive. He says it is the "Decomposition experienced by animal substances when deprived of life and placed under special circumstances. Such change is now, in the light of modern research, considered as resulting from the action of pathogenic microörganisms. Presence of water is indispensable; the temperature most favorable to it is from 60° to 90° F. The most common products of putrefaction are water, carbonic acid, acetic acid, ammonia, carbureted hydrogen and a semiputrid substance which is volatilized and has an infected odor. State of becoming putrid."

Thus we have stated the majority of the elements, pathological and chemical, to be found in a state of putrescent pulp. But these are not all. How forcibly are we reminded of the fact that the conditions enumerated in Dunglison's definition are by no means the only ones, when we stop to consider that discolored teeth are almost invariably those whose canals have previously contained putrescent pulps, or those in connection with which abscesses have developed, and also if we are familiar with the chemical elements present, and the fact that they are continually uniting only to lose their individual identity, and that as a result of this evolutionary process are produced certain other elements of an entirely different nature, and which are directly responsible for the production of other undesirable results. It has been said that of all the metals, iron, no doubt, is most largely disseminated throughout the system. An excess of iron may be present in the blood of an individual; if so, the pulp of a tooth contains its proportionate excess of iron in the red blood globules. In a case of putrescent pulp the red blood corpuscles are broken up and the iron is set free; this, in combination with the sulphureted hydrogen, which is formed by the putrefactive process, forms sulphide of iron. Also, an individual who is suffering from ptyalism—systemic poisoning by mercury—sulphide of mercury may be found in a putrescent pulp, having been formed in like manner unto the last previously named substance. And, again, there may be an excess of manganese in the system, in which case there may be found the sulphide of manganese in a putrescent pulp. The same might be said of lead and other poisons which we will not take time to enumerate.

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*Read before the Chicago Dental Society.

Thus you see there are many elements to be considered and to be gotten rid of in cases of putrescent pulps, aside from microörganisms and their poisonous products. It is not sufficient that we simply use a good germicide and a good deodorant if we would treat these cases intelligently and scientifically. We must understand the various properties of the drugs we use and be familiar with their ability to meet and to destroy the many different elements present in these diseased conditions. We must be familiar with the fact that it is not good practice, from a scientific standpoint and also from a practical standpoint in most instances, to merely open into the pulp chamber of a tooth containing a putrescent pulp and to dismiss the patient for a few days' time. Why? Because the opening permits the saliva and the air to enter the pulp canal, carrying with them an excess of oxygen. It is a fact that an excess of oxygen present in connection with the sulphureted hydrogen and the oxygenated hemoglobin of the blood intensifies the reaction caused by a union of these elements, thus resulting in the formation of the real coloring material—the sulpho-methemoglobin—in much less time and in larger quantities than is the case when an excess of oxygen is not present. This results in the rapid and ofttimes excessive discoloration of the teeth, one of the very important results to be avoided in the treatment of these conditions.

It is of the utmost importance, in this connection, that we appreciate fully the fact that the oxygenated medicines proper to be used in this connection, when properly used, are no doubt most efficient, producing most satisfactory results. No medicines should be used in these cases and remain any length of time until the contents of the pulp canals have been as carefully and thoroughly removed as possible in most cases, by mechanical means. This done, I contend and always have contended that the intelligent and conservative use of the oxygenated liquids, especially peroxide of hydrogen, pyrozone and hydrozone, constitutes a form of treatment which for thorough temporary cleansing cannot be excelled. We must understand that oxygen is one of our best all around agents, if I may refer to it in this way. It is one of our best antiseptics, germicides, deodorants and bleachers. Any of you who have experimented with it in connection with the various preparations of iron and other metals likely to be found in putrescent pulps will surely agree that medicines containing oxygen, and that are proper to be used in this connection, should be given the preference in the treatment of putrescent pulps.

I wish to call your attention to one agent I have used in these cases, as a deodorant, with most gratifying results—meditrina. This is purified sea water charged with electricity. This is a fairly good antiseptic; however, not so potent as has been claimed for it, but it is an excellent deodorant. It is claimed that meditrina enters chemically into combination with the mephitic odors and gases and in this way effects their destruction. Whether this be true or not, I am not prepared to state; but true it is, this agent has great affinity for these two products of the putrefactive process and very effectually destroys them. Cases in which it seems necessary to seal a deodorant for some time are indeed of a very mean character that will withstand the destructive effects, in this connection, of a thin creamy paste of beechwood creosote and iodoform.

In the general treatment of these cases our thoughts most naturally revert to a consideration of the essential oils. That we may intelligently use these agents in these cases, it is not sufficient that we understand only their value as antiseptics, germicides, and their action on soft tissue. We must study them with a view of determining what other properties or elementary constituents they possess that will enable them to act successfully by way of destroying the various products of the putrefactive process, as well as the microörganisms and their poisonous products. In this connection, I am pleased to present the following general classification of the essential oils from a chemical standpoint: First, those composed of hydrocarbons only; second, those containing hydrocarbons mixed with oxygenated products, and, third, those containing sulphur compounds. A more exact division is the following:

1. Oils consisting chiefly of terpenes ($C_{10}H_{16}$), and oxidized products allied thereto; such as oil of turpentine, of lemon and of camphor.

2. Oils consisting chiefly of cedrenes ($C_{15}H_{24}$), and oxidized products allied thereto; such as oil of cedar, of cubebs and of cloves.

3. Oils consisting chiefly of aromatic aldehydes and allied bodies; such as oil of bitter almonds and of cinnamon.

4. Oils consisting chiefly of ethereal salts. These may be either (a) oxygen salts, as in wintergreen, or (b) sulphur salts, as in oil of mustard, oil of garlic.

The first division or terpenes being allied to the hydrocarbons, are those composed chiefly of hydrogen and carbon. The second division or those referred to as the cedrenes, which means a volatile liquid hydrocarbon found in the oils of this division. They also possess a camphor which is deposited, the formula of which is $C_{15}H_{26}O$. Thus the benefit of the action of the element oxygen is obtained. The third division, or those consisting of aromatic aldehydes, meaning the presence of aroma in a class of compounds intermediate between alcohols and acids, derived from their corresponding primary alcohols by the oxidation and removal of two atoms of hydrogen and converted into acids by the addition of an atom of oxygen. Remember that oils of cinnamon and cassia belong to this division. In the fourth division, or those containing ethereal salts, do we find oxygen as one of their elementary constituents, as the formula of ether is $(C_2H_5)_2O$. These, of course, are of the oxygen salts. The oils of this division that are of the sulphur salts, that are proper to be used in these treatment cases, may be used to excellent advantage after the general debris of the putrefactive process has been thoroughly removed from the canals, as there is evolved from them a product of the sulphur series, which in combination with water forms an excellent bleaching and disinfecting agent.

Thus it should be our aim, always, to use for general treatment purposes, in cases of putrescent pulps, those essential oils that belong to the oxygen series.

I am, at present, working with the essential oils with the view of making a complete classification of them in this connection, and had hoped to finish the work in time for this paper, but it was simply impossible—hence only this partial list at the present.

THE PORCELAIN INLAY.*

BY H. M. HILL, D. D. S., ST. LOUIS, MO.

The subject of this paper is the Porcelain Inlay, and I come before you not as an adept in this art but as one whose experiments justify an interest as to the future of porcelain in the science of dentistry.

The perfect reproduction of the lost portion of the tooth both from the artistic and the sculptural as well as the mechanical has been most carefully studied and experimented, and it has been said "to know the posterity you should first look into the ancestry;" so that we may follow this advice the wonderful though minute pieces of sculpture wrought in gold by such masters as Drs. McKellops, Marshall Webb, Fuller and others are certainly worthy ancestry to all posterity that may follow; for these masterpieces from the sculptor's standpoint can fittingly be compared to a Michael Angelo or a Canova.

That gold has undoubtedly attained its full capacity as a filling material there can be no question, and its utility is thoroughly demonstrated when manipulated by the master hand, as its fault of color to the eye, and well may it be said to the credit of the most progressive profession in the most progressive century of Christendom that the advent of porcelain marks a well earned period in the history of dentistry.

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*Read before the St. Louis Dental Society, March 6, 1900.

The porcelain inlay can be attributed to the inventive genius of no single mind; however, Dr. Land, of Detroit, has no doubt been the most faithful developer of its utility; as it is to-day it is a composite or combination of the minds of many, and when carefully made, the most natural filling that can be placed in the tooth; though it may lack some essential features the most noticeable is that of the line of cement; yet that the brains in the profession of dentistry can obliterate this objection there can be no doubt. The beauty of the porcelain filling as to color, shade and texture is sufficient to deceive dame nature herself, and its strength is all that can be required, and as to its life, that depends on the skill of the dentist; for one must not attempt this class of work expecting something easy, an open sesame as it were, for it is not of that school, as it will require your entire attention, patience and ability to complete a satisfactory inlay. The minute attention to detail is absolutely necessary, but when complete the most fastidious operator will be well repaid.

The materials used in making an inlay are as follows: The metal for the matrix, the porcelain and the cement, much depending on the character of each. For the matrix the preference should be given to a metal that will stand the fusing of a high fusing porcelain; this metal would be platinum in which you have all that the gold matrix would supply and the advantages of an increased rigidity and a higher melting point.

Platinum that is suitable for this class of work should be most carefully prepared. To do this you should roll your platinum carefully through clean mills, annealing frequently over an alcohol flame, never allowing your platinum to come in contact with a gas flame or burning charcoal, owing to its absorption of gases at a higher temperature and the silicon reduced by the charcoal ash, either of which render platinum brittle and practically unfit for use as a matrix. Yet by careful preparation you can produce a platinum foil almost as pliable as gold. Another way to procure a very thin platinum foil is by taking what is known as "platinum and gold foil," such as is used for filling, by immersing it in aqua regia and dissolving the gold, leaving a very thin, pliable foil, which requires the most careful handling.

The porcelain is a matter of choice, and is divided as two classes, the hard and the soft paste. The hard is a natural kaolin clay, composed of kaolin and what is known as petuntse; this latter substance is supposed to contain a large percentage of feldspar; however, its exact composition is unknown. In working this clay it is less unctuous or plastic than the clay we ordinarily use; when baked it has a hard feldspar glaze, having great strength, and shrinks or warps but little, if any, in baking. This is owing, no doubt, to its high percentage of silica. It requires a high degree of heat to fuse, and is very strong and compact, being known as the least perishable of all material. So far as we know this clay is not used in dentistry, nor in any porcelain save that made in China and Japan, where the natural clay is found. The soft paste is an artificial kaolin clay, and is much more easily worked than the hard. It is of this character of clay that we are now supplied, and while in many respects preferable, no doubt, to the hard clay, however, we know that the higher fusing that this clay is, the more satisfactory it is for resisting the strains to which it is subjected. The coloring matter is principally of metallic oxides, and a study on this line would be too deep for us to enter here, and equally unnecessary, as we will rely on the manufacturers to produce the proper shades and colors for us.

The cement to be used should be of an extremely fine grain; the powder when incorporated with the liquid should make a smooth even texture and be of the proper tone so that it will not interfere with the translucency of the porcelain.

I have here an enlarged model of an incisor having a labial cavity, one which we all meet often and which presents probably the most favorable case for an inlay; however, all cavities in the anterior teeth can with care be filled in this manner.

The cavity should be prepared as for a gold filling excepting that all undercuts must be avoided, and if owing to the nature of the decay the undercut cannot be avoided this point should be filled with cement so that the cavity presents a cone, the inner surface being the apex, its regularity depending on the shape of the cavity. The foil for the matrix should be cut approximately the apparent size that is required to line the cavity; anneal this over the alcohol flame and with a ball burnisher commencing at the center and gradually working towards the margins burnish the foil to place; carefully with your burnisher note the outlines of the cavity, being careful not to impose on the prepared edges of your enamel; remove and trim with shears the foil as outlined, leaving at one point a lip with which to handle the matrix; anneal this over the alcohol flame, replace the matrix in cavity and press it carefully to place, using your burnisher, preceded by a pellet of cotton fairly tightly rolled. Remove your cotton then carefully remove the matrix, avoiding any disarrangement of it. It is always well in doing this to keep the cavity moist with the saliva of the mouth, as it reduces the tendency of the closely adapted matrix from adhering to the cavity. This operation will have to be repeated if you still have a surplus of the metal employed, and you will find it well to make several matrices for each cavity; selecting the one most suitable, you are ready to place therein your *slip*, as this term is used by porcelain workers to designate the pulverized clay when mixed with water. The slip should be of a soft creamy consistency. Grasp your matrix by the lip with a pair of tweezers and paint the concave surface of the matrix with the slip, using a finely pointed camel's hair brush. Tap the tweezers gently so that you will bring the moisture in the slip to the surface, absorb the moisture by using a piece of soft linen; repeat this operation until your matrix is slightly more than full. Evaporate all moisture remaining by heat and bake to what is known as the biscuit; cool and notice if there is any extra shrinkage so that the matrix is not full, if so add more porcelain in the manner as described and rebake. The final baking should be to a dull glaze. Allow this to cool and place it in the cavity, observing that the inlay completely restores the former surface of the tooth; if so remove and peel the metal from the porcelain, commencing at the lip and always tearing from the edges, otherwise you are liable to mar the edges of your inlay. Now with a suitable bur cut your undercuts in the cavity of the tooth noticing about the corresponding point on your inlay. Set your inlay in jeweler's or sealing wax on a piece of pine stick with the external surface ot the inlay imbedded in the wax. With a copper disk, made by taking an old bur and soldering thereon a piece of copper plate, and turned down to about three-sixteenths of an inch in diameter; moisten this with a mixture of carborundum powder and glycerine; with this cut your undercut in the inlay, forming it similar to a collar button, avoiding all acute angles. Wash this in water and remove from wax by applying a gentle heat. Your inlay is now ready for insertion. Apply the rubber dam to the tooth and thoroughly dry the cavity. Mix your cement to a thin, even consistency, painting your cavity with it, insert your inlay and press it firmly and gently home, allowing all excess to escape before final rest, hold in place for a few minutes until the cement has set sufficiently to retain the inlay; before removing the rubber dam allow the cement to set thoroughly.

This method in general is that outlined by Dr. Head, of Philadelphia, and I believe is the most practicable and preferable of any that we know of. The results are, when care is taken in its construction, extremely satisfactory and excepting small line of cement is absolutely perfect. In my experience the cement line regarding the life of the inlay is of little if any objection and is only noticeable by careful examination, and it is advised that in inlay work that metallic pins should be always avoided and that a pin of porcelain is much stronger and does not weaken the body of the inlay. I have found this to be a fact though have several times to my sorrow fallen into the temptation of using the platinum pin to retain the filling. In cases where it is necessary to grind the surface of the filling an Arkansas stone should be used, and what is known by the lapidermist as putty powder (oxide of zinc) can be used for polishing; this powder is also valuable for polishing all classes of porcelain. However, your inlay had better be not full enough than too full.

I know well that probably the majority of the dental profession are skeptical regarding the porcelain inlay, but no doubt when porcelain teeth were introduced there was equally as much skepticism and probably so when gold was first introduced as a filling material. But to-day we all know the great perfection that has been attained by both and should consider deeply before we cast aside the porcelain inlay probabilities in dentistry. As said in the first portion of this article my individual work in this line has been merely experimental, yet the results have been of such a satisfactory character that I deem it not unwise to bring this matter to the attention of this scientific body, believing that there are men in the dental profession in St. Louis who can improve and probably perfect a system by which the lost portion of the tooth can be from all standpoints absolutely perfect except that of having life.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held in the Stewart Building, February 6, 1900, with the Vice President, Dr. G. W. Cook, in the chair.

The following papers were read:

1. "The Treatment of Acute and Chronic Alveolar Abscess," by Dr. A. W. Harlan.

2. "The Management of Blind Abscesses and Teeth Containing Dead Pulps that are Dormant," by Dr. Elgin MaWhinney:

3. "The Best Disinfectants to Use in Root Canals," by Dr. A. H. Peck.

These three papers were discussed jointly. Dr. Thomas L. Gilmer was called upon to open the debate. He said: The subjects that have been presented are interesting to us, although no new facts have been advanced. If there is anything that we need additional light upon, it is the treatment of the roots of teeth, because there is nothing in dentistry, I presume, that we do so poorly. It matters not how well we prepare a cavity, how well we shape the margins, or how well we adapt the gold to the margins, if the root is in an imperfect or diseased condition, sooner or later we will have trouble. We spend more time, I imagine, in the treatment of the roots of teeth than we imagine. It is a large part of the dentist's work. In dealing with these cases, the most important thing is thoroughness. I should not always open into the roots of teeth at once in cases of acute alveolar abscess, if the disease had passed beyond a certain stage, that is if pus had formed, unless I was quite certain that I could evacuate it through the tooth. We often make matters worse by opening into a tooth at that stage. If I open into a very sore tooth I am exceedingly careful to protect it in such a way as to produce the least possible additional injury. To do this I mold modeling composition on both the lingual and buccal or lingual and labial sides of the sore tooth and those adjoining, thus giving it support. By adopting this precaution we may prevent a more serious injury which would otherwise occur, at the same time save the patient much discomfort.

Dr. MaWhinney has told us that the blood normally does not contain microörganisms. This is true. But if there is a small focus of suppuration in any part of the body, unless the white blood cells have walled it in, we may expect to find microorganisms floating in the blood channels, and later we may not only have irritations at the ends of the roots of teeth containing dead pulps or those not perfectly healthy, but an acute inflammation set up by their presence.

Dr. MaWhinney spoke of the existence of a pyogenic membrane at the apex of roots of the teeth. There is no such thing as a pyogenic membrane, pus forming membrane. It is a misnomer. If he will examine this so-called membrane he will find it is simply granulation tissue which is unable to go on to full cicatrization on account of the presence of some irritating products, or a cystic condition caused by the presence of the irritation. Dr. MaWhinney asks the question, why do we so often see dormant cases suddenly become painfully acute when a pulp chamber is opened into? I am not sure but Dr. Peck hinted at the cause in his paper. Sometimes it may be only necessary to admit a plentiful supply of oxygen to the presence of that which is already in the canals in order to form poisons which will cause an active inflammatory condition. I only offer this as a suggestion. Oxygen cannot ordinarily be supplied to a pulp cavity sufficiently plentifully through the blood channel to complete the formation of poisons in quantities sufficient to cause an acute condition.

In the treatment of putrescent pulps, I would not remove all of the debris at the first treating; I would open up the cavity, remove a sufficient quantity of the dead matter to permit an application of iodine and creosote. If we place in a pulp chamber containing septic material, a piece of cotton which has been saturated with a mixture of tincture of iodine and creosote and seal it for twenty-four hours we will discover that the color of the iodine has been lost entirely; the cotton will be white again. Iodine is incompatible with ammonia, which is always present in decaying animal matter; it is also incompatible with the alkaloids. If it is incompatible with ammonia and the alkaloids, then we will have a decomposition of both of these, and when decomposed by the iodine the presence of the creosote prevents further putrefaction, which is probably the reason why this combination is so useful in the treating of these cases.

Dr. MaWhinney also spoke of using a twelve per cent solution of sulphuric acid for the purpose of dissolving dead bone. My experience leads me to believe that a twelve per cent solution of sulphuric acid does not under such circumstances dissolve dead bone. It is beneficial because it is a stimulant and an antiseptic, not as a dissolver of dead bone. Aromatic sulphuric acid is equal to a twenty per cent solution of sulphuric acid. I have experimented with this in treating cases of necrosis, and find that it dissolves bone very slightly. We sometimes find an incurable abscess at the root of a tooth, and on examination find that the root has been dissolved and made rough by the presence of something about it, possibly by the osteoclasts, or by some chemical action. We also frequently find in connection with this caries of the bone about the ends of the roots. These cases do not get well by simple medication only. In all such cases it is desirable, if possible, to open into the root through the process and gum. To do this make a circular incision in the gum, turn up the flap and with a spear-shaped drill make an opening through the root. Then with a cross-cut fissure bur cut right and left and remove the end of the root. Afterward bur out all carious bone and irrigate with an antiseptic. Previous to this operation the root should have been made aseptic and filled to the end. Any cases which have resisted all antiseptic and other treatment quickly subside and become healthy after the removal of the rough portion of the root and the carious bone.

Dr. Fred B. Noyes: I have been skeptical as to the effect of sulphuric acid in dissolving bone, for two or three reasons. First, in histological preparation of tissues, we never use it to remove the lime salts from bone. Second, from a chemical standpoint, what would be the effect of the action of sulphuric acid upon tissue containing the salts of lime? The action of the acid would form the sulphates of calcium and of magnesium, and the sulphates of calcium and magnesium are the most insoluble of compounds. If the sulphuric acid acted on the phosphates, the sulphates formed would not be soluble, but would remain as a precipitate. It is a chemical law that in order to have reaction between a solid and a liquid a soluble substance must be formed. It does not seem probable theoretically that sulphuric acid would actively dissolve bone or dentine, and from practical experiments it does not seem to act to any considerable extent unless strong enough to produce extensive decomposition. What it does do probably is to act as a stimulant to tissue elements which do destroy or build bone. If it acts as a stimulant to the cells of the tissues which have that function, some of those rough and irregularly pointed ends may be removed. The rough ends of roots are not usually smoothed by absorption, however. If this represents the end of the root (illustrating) normally, and the osteoclasts have gouged it out into irregular projections, we never get these irregular projections smoothed down by further absorptions. These must be rounded off by the new growth of tissue to fill up the holes, so that instead of having osteoclasts stimulated to remove the rough ends, the cementoblasts are stimulated to fill up the hollows.

Just a word or two in regard to the hornet's nest which was stirred up in the paper. In a general way, we are too apt to think of pulps dying as a whole. We open into a tooth and find a putrescent pulp, and we say we have a dead pulp. As a matter of fact, pulps very seldom die as a whole, and when they do, it is usually the result either of traumatism which breaks the connection of the arteries and vessels which enter the pulp at the apical foramen, so that the pulp dies as a whole, or there is an acute hyperemia that results in infarction in which by the constriction of the blood vessels the circulation is stopped in the entire pulp. If the pulp as a whole dies at once, it would be impossible afterward for infection of the pulp to take place through the systemic circulation. Why? Because there is no circulation in it. If the pulp as a whole were dead, there would be no way of carrying microörganisms to it through the medium of the circulation because the blood does not circulate through it. Microörganisms might come in from the circulation beyond the apical foramen, but you will expect to find their action on the tissues of the apical space first. Some source from the mouth cavity seems in most cases more probable. We must think of a tooth pulp the same as we think of other tissues in the body. We must think of the formation of an abscess in a pulp the same as we think of the formation of abscesses in other tissues of the body, as in a muscle removed from the surface of the body, or a miliary abscess in the kidney, resulting from an acute infection of this organ.

From our study of the pulps of teeth we find very often abscesses developing in the substance of the pulp; the white blood corpuscles have passed out in the process of inflammation, the circulation in that area of the pulp has been arrested, and there is a breaking down of tissue. The cells die; they do not further decompose unless acted upon by microörganisms, and after that occurs, the tissue breaks down and we have the formation of pus or the development of a true abscess within the substance of the pulp. Let this diagram (illustrating) represent the pulp chamber. Pulp tissue normally consists of embryonal connective tissue in which the cells are widely scattered, represented by dots here and there through the tissue. The circulation of the blood is abundant, but the walls of the blood vessels are exceedingly delicate, so that inflammatory conditions are set up easily. The white blood corpuscles pass through the walls of the blood vessels with ease. If there is an irritation which causes inflammation in the pulp tissue, we will have a pouring out of white blood corpuscles, and the spot represented on the board presents the histological appearance which we would have in an abscess center in the kidney, simply a collection of white blood corpuscles at a point. These cells further break down and a true pus cavity is formed, and the process of inflammation advances ahead of that of suppuration, so that surrounding the broken-down abscess containing pus we have an area of inflammation. Now, if the area of inflammation is in a chronic condition, the white blood corpuscles through the inflammatory area develop rapidly into connective tissue cells, or embryonic granulation tissue. The products of the microörganisms are shut up in the space, their action is inhibited because of their products which are poisonous to themselves. We may find a cavity involving perhaps the whole body of the pulp, which is occupied by pus, broken-down white blood corpuscles, and the ordinary contents of an abscess cavity in any portion of the body, the rest of the pulp in the canals bordering this cavity showing that the organization of white blood cells forms an imperfect wall. They may remain in that condition for an indefinite period. Why? Because there is no escape practical, and the microörganisms in the pus cavity are inhibited in their action by the poisonous products which they themselves have produced. Should you open into such a tooth and empty the pulp chamber of its pus, you have a chronic inflammatory condition of the tissues adjoining it. As soon as the pulp chamber is emptied, it fills up with fresh serum. You could not get a better culture medium for the development of microörganisms; you have supplied them with new food and removed the products which inhibited their action. The products which result from the new rapid activity of the microörganisms kill at once all the rest of the pulp tissue, and the microörganisms grow down through the root canals and apices and we have produced an alveolar abscess. The surgeon is very cautious in opening a large abscess cavity and evacuating its contents in any position in the body, particularly if the abscess has existed for a long time. Cases of systemic blood poisoning from opening and evacuating such abscesses are not infrequent. We should consider the pulp as a tissue subject to abscess formation in the same sense as any other tissue in the body.

Dr. J. N. Crouse: From the character of the papers this evening and the discussion which has followed, the impression might prevail among the younger practitioners that the treatment of alveolar abscess is a difficult and uncertain operation. In my experience that is not true. I have never seen but two cases of alveolar abscess that I could not cure, and all the others were treated without resorting to surgery. If you will remove the cause and give nature a chance in these cases there will be more accomplished than you expect. The healing processes continue steadily, and when eventually the abscess is cured you think you have done it, while you have only removed the cause, and perhaps gone a little further in obstinate cases.

One of the essayists touched on the methods of treating blind abscesses, but said nothing about the most difficult class of teeth with which we have to contend—those cases in which there is a large pus pocket at the end of the root, with no fistulous opening and no means of escape for the contents of abscess except through end of root. It is hard to evacuate the pus in these cases without creating a good culture medium for the growth of microörganisms which will keep up a constant irritation.

Of the many remedies employed in the treatment of these abscesses, I can treat successfully with only two or three. The best of these is carbolic acid, ninety-five per cent, with which I treat these abscesses for two or three days, and then give nature a chance. In one or two instances where I have employed surgical measures I have failed. I prefer to leave the end rough rather than to make a large hole, because it will never close up.

I have known some of the older and most successful practitioners to fill the roots of teeth with cotton. Dr. Cushing was one of them. They did so for years and years, and had as little trouble as any of us with their cases. They simply used carbolized cotton and packed it thoroughly into the roots. I have taken out some of those cotton fillings, and nothing so disgusts a patient as to hold one of them to his nose. While their results were very good, I should not think of using that method.

The most successful dead teeth I have seen were whitish, and the most comfortable were those where the pulps died under oxychloride of zinc. I have capped pulps in this way, and they have lived for years and the teeth were comfortable. The end of the root was sealed over by a membrane in the natural way; it did not make any difference whether there was any vacuum or not.

Dr. Edmund Noyes: With reference to what has been said about treating alveolar abscesses with carbolic acid, these abscesses will usually get well just as quickly if you disinfect the abscess cavity and the fistulous tract with equal thoroughness by means of antiseptics which are not escharotics, as with the aid of carbolic acid. By the use of carbolic acid you may destroy considerable tissue, and it is to be said by way of caution that the tissue which you kill with this acid is a good soil for the growth of pus germs if any are left alive.

Dr. H. A. Cross: I have been very successful in treating alveolar abscesses during the few years I have been in practice, but I have a case in hand now which is very unusual, at least it is an exceptional case in my practice, and my excuse for mentioning it is to obtain some information, if possible.

The circumstances of the case, related briefly, are these: The patient, a German professor in one of our universities, came to my office last spring, and said that a gold cap which he had put on to an upper second molar some time before had come off. I examined the tooth and found that the cap which had come off was of no benefit, and I advised him to leave it off and let it go as it was, without the cap.

This tooth was one which had wasted away before being capped, so that little remained of it except the roots. The lower molar occluding with it was much elongated.

The capping of this upper molar was done in Germany, by a German dentist.

I next saw the case when the patient called upon me again in December last. He was suffering with an alveolar abscess at this upper second molar. Upon examination I found a swelling upon the palatal side, containing an accumulation of pus, but there was no fistula. I lanced it, and syringed it out with a solution of hydrozone and water. I then removed an amalgam filling which I found in the stump of tooth, a stump being all that remained of this molar, and upon removing the amalgam filling, I found a hole right through the tooth between the bifurcation of the roots. I discovered that the canals had never been cleaned out and filled. On this occasion I did not find the disto-buccal root canal, but obtained good access to the lingual and mesio-buccal canals. I cleaned these two canals thoroughly, and discovered that by forcing air up into the lingual root canal it escaped down and out through the mesio-buccal canal, and brought pus with it, showing conclusively that there was an opening in the alveolar process between the apical ends of the lingual and mesio-buccal roots.

I have been treating this case about two months. I gave it a treatment this morning, on which occasion I found that there was no foul odor remaining in it, the only odor detected being that of the medicines used. As stated, upon the occasion when I first operated upon this case, I did not find the disto-buccal root canal, but I did subsequently find it, and gave it the necessary treatments, and filled it.

I will now tell you what I propose to do with this case, and if any one notices any error in my proposed course of procedure, I will thank you if you will kindly criticise it. I call your attention again to the fact that there is an opening in the alveolar process connecting the apical ends of the lingual and mesio-buccal roots, and if I can get rid of the moisture in the canals of these two roots, I shall proceed to fill the canals, and, if possible, will force chloro-percha right through the canals, and thus fill that open pus-formed space in the alveolar process between the roots. Then having filled the canals, if there should be any further disturbance arise, I will bur right through that hole, between the bifurcation of the roots, up in the pus pocket before mentioned, and thus deal with it direct in that manner.

If there is any member present who can suggest a better method of dealing with this case than I have given, I shall be greatly obliged to him.*

Dr. C. N. Johnson: Referring to the case of Dr. Cross, I would suggest that if he gets the root canals in a perfect condition, nature will close the opening beyond the roots better than he can do it.

Dr. Crouse, in his remarks, spoke of the use of carbolic acid in the treatment of alveolar abscesses. There is no one agent we have that so readily seems to control the chronic cases of long standing with fistulous opening as ninety-five per cent carbolic acid. It will cure cases after we have tried all other remedies, if we can force it through. While it may be true, as Dr. Noyes has said, that the eschar formed by the acid may be an excellent culture medium for the development of microörganisms, I want to say that, from a practical point of view, they do not seem to thrive on it, but the fistula eventually closes up permanently. I do not use it as Dr. Crouse seems to at the outset, but after a diffusible agent has been employed and the abscess refuses to heal, I know of nothing more effective than carbolic acid.

Dr. J. H. Woolley: I came here prepared to discuss the paper of Dr. Pruyn on filling pulp canals with gutta-percha and sandarac varnish. As the doctor is not here, I am unprepared to discuss the other papers.

Dr. E. J. Perry: I will speak of a method of treating blind abscesses which has not been touched upon so far either in the papers that have been read or in the discussion, even at the risk of being considered ridiculous. I use iodoform mixed to a creamy consistency with either oil of cloves, or oil of cinnamon. I refer to that class of blind abscesses in which pus comes up into the pulp chamber, and persistently refuses to disappear. You feel that you are up against the real thing, and you are discouraged in your attempts to get rid of this pus. My method of using it is this: I dry out the canal as well as I can, using the dam, and pump into the pulp chamber this creamy mixture, and then absorb the surplus oil with cotton or bibulous paper and pack it in closely. On top of that I place a small pledget of cotton, and seal the cavity with gutta-percha, dipped in oil of cajuput, hermetically. I am not always uniformly successful, because once in a while, in a certain percentage of cases, I will be obliged to remove this material and experiment with it a while longer before hermetically sealing it. I venture the assertion that in ninety per cent of the cases of these distressing alveolar abscesses in my practice a cure is either effected, or the flow of pus stopped.

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*The case cited above by me has been brought to a successful termination. In filling the canals, I acted upon the suggestion or advice given by Dr. C. N. Johnson, namely, leaving it to nature to fill the opening between the apical ends of the roots referred to. No disturbance has arisen.—[H. A. Cross.]

It is very gratifying to me to listen to these scholarly discussions on abscesses, and I wish to express my appreciation to the gentlemen who have read papers this evening and to those who have discussed them. There is one thing which is particularly gratifying to me, namely, the denial of the existence of this pyogenic membrane or pus-producing sac, which from my earliest professional experience I have been taught to believe existed upon the ends of pulpless teeth, and whose specific function was said to be to make pus. I am glad to know there is no such thing. I am pleased to know that all we need, where there is a fistulous tract, is to thoroughly treat the case antiseptically; that is, remove the cause, and ninety-five per cent of the cases will get well of their own accord.

Dr. George W. Cook: I have been interested in these papers very much. There are two or three points that impressed me very forcibly. There is one thing that seems to be quite sure in my mind which produces this condition, and it is this: Most of the microörganisms, perhaps all of them that exist in the mouth, are germs that do not live well without oxygen, particularly those that are pathogenic. When they are in a place where they do not get air they become non-pathogenic. We have the obligate microörganisms, those that grow without oxygen, but do not produce any injurious effects, but the moment they are in possession of sufficient oxygen they return to a pathogenic state. I think that, perhaps, is one of the main reasons, rather than the filling of the cavity with serum, which of course is a good culture medium, as Dr. Noyes has said, but the main culture medium that we get is the oxygen of the air.

In regard to the treatment of chronic alveolar abscesses, I have experimented, as everybody else has, a little along this line. A remedy I have used with success is equal parts of sulphuric acid and carbolic acid. Where there is an apparent neurotic condition around the roots of teeth, this remedy to my mind is one of the best I have ever tried. In cases where there is considerable necrosis of bone, with a denuded condition of the roots of the teeth, by gently packing the fistulous opening with cotton for a few days, removing it, then enlarging the opening and packing the sulphuric acid and carbolic acid down through the roots, especially if the canals are constricted and difficult of access, forcing it through, then taking a small strip of gauze and pack it into this opening, I fill the root and treat the fistula with this, drawing the dressing out of the fistula until it is healed from underneath. I have met with better success with this than with anything I have tried. In all antiseptics we have got to look for an antiseptic whose affinity is greater for microörganisms than it is for the tissue of the human structure. It is along this line that we will have success, but not before we have permanently settled this question. In other words, we have got to study biological chemistry. When we have accomplished that, we will have accomplished a good deal in the treatment of suppurative conditions of the alveolar process.

Another preparation I have used in those cases where I do not wish to make any more trouble than is possible, and especially in cases of syphilitic teeth to which Dr. MaWhinney has referred, is tri-brom-phenol instead of iodoform preparation. It is a combination of bromine and carbolic acid. It is a white powder; very easily placed into pulp canals, can be put in gently and sealed up, and it is to my mind almost ideal treatment for this class of cases. I have used it in sore teeth.

There is one point in regard to the use of iodoform which should be mentioned. We do not get any antiseptic properties from iodoform unless there is a germ present which elaborates the iodine combination and sets free the iodine. The iodine, of course, has an antiseptic action, and there are very few microorganisms with which I have experimented in the mouth that do that. They break up the iodine combination from iodoform.

I have particularly discarded the use of carbolic acid or creosote in the treatment of alveolar abscesses, and now use cresol, which is the active principle of phenol, and it is in a pure state. It is less irritating, and about six times greater as a disinfectant than that of carbolic acid or many of the other remedies used in the treatment of pulp canals. The cresol preparation is not a new antiseptic by any means. It has been used very extensively for the purpose of disinfecting the alimentary canal, and it is quite extensively used in Germany at the present time for similar purposes, and I think it is likewise used in the treatment of roots of teeth. You will find that it is considerably less poisonous and a better antiseptic than many of the remedies you use.

I feel that Dr. Peck has given us many valuable suggestions along this line of work, and let us hope that we shall hear from him again on this subject.

Dr. MaWhinney (closing the discussion): I have but little to say in closing except to thank the society for the kind treatment of my paper. Of course I realize there are many important points left out of the paper, partly because of the short time allotted to my portion of the symposium. I think Dr. Fred Noyes unintentionally conveyed the impression that it is not possible to inject the contents of a root canal through the medium of the circulation after the pulp is dead, which, as everyone knows, is not true. We do not get into trouble often when we open into root canals that are filled with pulps which have recently died, but it is those cases where the pulp has disappeared—been carried off and the canals contain thin serous foul-smelling fluid. The same thing is true of teeth containing imperfect root fillings.

The longer I practice dentistry the more difficult it seems to me to fill roots perfectly. I tell you almost daily I open teeth that have been filled as perfectly as mechanical means will fill them. I find gutta-percha, I take it out, and it stinks horribly. The other day I opened a tooth which had been filled by an eminent dentist, a man who is known throughout this country for his skill. The patient came to me with the tooth very sore. It was a second bicuspid, right superior. There was a hard swelling over it which had been present for a month or more. The tooth was tender. When I took out the filling, so far as human eyes could see, the root was mechanically filled to the apex. The two root canals were reamed out carefully by the dentist who had filled them, yet when I took out the filling proper in that cavity and reached the pulp chamber, the material there was foul-smelling. I reamed it out as carefully as possible, and I believe it was mechanically filled to the end.

I tried to emphasize the point in my paper that these cases have been going on for years as the result of one of two reasons; namely, either the animal cells surrounding the teeth are sufficiently active to literally digest the microörganisms, or we have a condition of the system in which the nutritive process is sufficiently active to carry off the poisonous products. One reason why we do not have trouble in these cases is because of the presence of a specific antitoxin in the blood itself, which acts as an antidote to microörganisms and putrefactive processes.

I was much surprised to hear Dr. Crouse intimate that I did not touch on the treatment of blind abscesses in my paper, because I practically dealt with nothing else. (Here Dr. MaWhinney went to the blackboard and demonstrated his method of opening into and treating a blind abscess where alveolus is absorbed.)

My method of treating these abscesses is practically the same as that suggested and outlined by Dr. Harlan in his paper and reiterated by Dr. Gilmer. I make an opening from the outside and treat the case as a chronic abscess. We must cut in at this point (referring to diagram), lift up a flap of gum, curette the cavity, treat it through the root until it is clean, then pack the cavity with antiseptic gauze until healing takes place from below.

In reference to sulphuric acid, I use it for the purpose of getting rid of calcific deposits that may be on the root end. I have examined many abscessed teeth that have been extracted and I have found these rough deposits on the outside. Take these teeth and immerse them in twelve per cent sulphuric acid, the deposits will fall off. This acid may be used for the purpose of destroying the so-called pyogenic membrane, which is not a pus-producing membrane at all in the strict sense of the term. I believe we can heal a chronic alveolar abscess which discharges on the gum just as well with bicarbonate of soda and water as with the other agents. All we need to do is to wash it and clean it out, and it will heal itself.

In regard to the use of cresol, as mentioned by Dr. Cook, my objection to its use is that it discolors the teeth. I have had very unsatisfactory results from it in that respect, consequently I have abandoned it. However, it is a good disinfectant.

A regular meeting was held in the Stewart Building, March 6, 1900, with the Vice President, Dr. George W. Cook, in the chair.

Dr. H. W. Pierson read a paper entitled "Constitutional Effects of Amalgam Fillings and Red Vulcanite Plates upon the Human Organism."

The discussion was opened by Dr. J. E. Hinkins.

Dr. J. E. HINKINS: When I received an invitation from Dr. Bentley to open the discussion on this paper on "Red Vulcanite Rubber and Amalgam Fillings," I was at a loss to know in what way to conduct my experiments. After due consideration, Dr. Cook and I devised a sand bath made of two cylinders of sheet iron, one in the other. There is a vacuum of about one inch between the two walls. In this sand bath we had a number of wooden blocks of the same size and thickness. A centigrade thermometer stood in the center of the cylinder. These blocks had holes in the center bored half the way through. The thermometer and tubes stood in these holes on the top of the sand; the cylinder was about ten inches deep. The rubber was placed in test tubes and the copper foil was put into the tubes about one-quarter of an inch above the rubber or amalgam, whichever I was testing. My first experiments were conducted with red rubber with a temperature varying from 60° C. or 140° F. to 210° C. or 410° F. With both vulcanized and unvulcanized rubber I tested for mercury with the copper test, and in only one instance did I find a trace of mercury. The rubber was also tested for arsenic with the Marsh gas test, and I found no trace of arsenic. I have been reliably informed that the coloring matter in red vulcanite rubber is largely due to antimony rather than to the persulphate of mercury. I firmly believe there are more sore mouths from filthy plates and the decomposition resulting from this condition, together with the non-conductibility of the rubber than from the coloring matter in the rubber.

Amalgams. Copper amalgam was the first amalgam I tested. I conducted a series of experiments on it in the sand bath the same as the other, at a temperature of 60° C. or 140° F. for fifteen minutes, with no trace of mercury. At thirty minutes I was able to find a trace of mercury. These experiments were made at different temperatures, the lowest, as stated, was 60° C. or 140° F. and the highest was 210° C. or 410° F. The cupping out of copper amalgam I attribute more to chemical action than to the galvanic action, as has been suggested by some dentists. The reasons for this chemical action are three. First, the amalgam is soluble in alkalies; second, soluble in acids; third, soluble in oils or grease. All three are abundantly found in the mouth, and the amalgam is readily decomposed by the aid of an acid or an alkaline medium, or an oil-producing verdigris.

Silver Amalgams. Of the four silver amalgams with which I experimented at a temperature of 60° C. or 140° F. for fifteen minutes, I found no trace of mercury; at thirty minutes, no trace of mercury; at forty-five minutes, there was a slight trace of mercury. This is the lowest temperature at which I could find any trace of mercury in any of the silver amalgams, and the highest temperature was 210° C. or 410° F. The longest time we held the amalgams up to this degree of heat was sixty minutes, and found free mercury; however, that would be about the point of distillation. We also observed that the amalgams which had been heated to 60° C. or 140° F. for forty-five minutes required two hundred pounds pressure or more to crush when cold, while the amalgams held at 210° C. or 410° F. for sixty minutes could be crushed at from twenty to forty pounds pressure, or, in other words, the ionization of the amalgams is entirely changed when heated above 60° C.

With reference to the chemical affinity of mercury and silver, if there should be an evaporation of mercury, as is claimed by the essayist, would there not be a disintegration of amalgam fillings? In corroboration of the above statement, I would raise this question: Why is it that all refiners of precious metals use mercury to extract the gold and silver from the baser metals, and then the mercury is driven off in the cylinder at red heat, and the mercury condensed on cold surfaces and the process repeated ?

In 1887 I filled six teeth with silver amalgam for a prominent homeopath. The filling in each tooth was weighed before it was inserted, and record kept of the exact weight of each filling when completed in the tooth. These teeth were affected with pyorrhea. One tooth came out a year after the fillings were put in, and the other teeth dropped out within a period of five years. These teeth, as soon as they were removed from the mouth, were washed in alcohol, broken to pieces, the amalgam fillings removed, washed in alcohol, and weighed again, and a careful comparison was made in each case, with the record kept of the filling when inserted, and in every filling the amount of amalgam was increased when removed from the tooth. The reasons for this increase in weight I attribute to the oxidization and the sulphides forming on the surface of the amalgam, for which the amalgam has a very strong affinity. To corroborate my statement I offer the well known facts, gold and mercury, silver and mercury and sulphur and mercury occur very abundantly in nature.

Copper Amalgam. If copper foil be rubbed with solution of nitrate of mercury, it becomes covered with a bright, lustrous coating of the metal, and if a line be drawn with this solution on a piece of brass foil and the foil bent at this place it can easily be broken, as the mercury very soon penetrates the copper and renders it brittle.

Amalgams are usually obtained by the direct union of the metal with mercury. In this case diminution of temperature is not unfrequently noticed, as when tin is dissolved in mercury. Sometimes, on the other hand, heat is evolved, as when the alkali metals are amalgamated. Amalgams are also produced by the addition of mercury to a solution of a metallic salt. Another mode of obtaining an amalgam is to place the metal in solution of mercuric nitrate, or together with mercury and a dilute acid; and, lastly, amalgams are formed by the action of a weak galvanic current upon a solution of salt into which a globule of mercury has been poured, the zinc pole dipping into the globule of mercury. The amalgams correspond in their chemical relationships to alloys, consisting generally of a mixture of one or more amalgams of definite composition with an excess of mercury; a much larger number of amalgams of definite composition has, however, been isolated than is the case with the alloys of any other metal. The amalgams containing a large quantity of mercury are often liquid, while those which contain less are frequently found to crystallize. When heated above the boiling point of mercury a number of the amalgams retain a certain proportion of mercury. Thus silver amalgam when heated to 450° F. leaves a compound which still contains 12 per cent of mercury; and gold amalgam treated in the same way leaves a residue containing 10 per cent of mercury. Similar results are obtained with copper, sodium, potassium, the composition of the residues corresponding to the following formulæ: Ag_3Hg, $AuHg$, Cu_6Hg, K_2Hg, Na_3Hg.

Mercury as a liquid metal is capable of discoloring other metals and forming metallic solutions. These are generally called amalgams; the formation of these solutions is often accompanied by the development of large amount of heat.

It is evident that phenomena of this kind are exceedingly similar to the phenomena accompanying the dissolution of salts and other substances in water, but here it is easy to demonstrate that which is far more difficult to observe in the case of salts. The solution of metals in mercury is accompanied by the formation of definite chemical compoundsof the mercury with the metals dissolved. This is shown by the fact that when pressed (best of all in chamois leather) such solutions leave solid definite compounds of mercury with metals. It is, however, very difficult to obtain therein a pure state on account of the difficulty of separating the last traces of mercury, which is mechanically distributed between the crystals of the compounds. Nevertheless, in many cases such compounds have undoubtedly been obtained and their existence is clearly shown by the evident crystalline structure and characteristic appearance of many amalgams.

Alloys. The behavior of molten alloy observed by Alder Wright very closely resembles that of ordinary solutions; thus the metals which may be fused together in all proportions may be compared with solutions of water and alcohol, whilst those which form ideal alloys resemble water and ether, each of which can only take up a definite and limited proportion of the other. The liquidation which takes place during the cooling of a molten alloy is further * * * analogous to the behavior of aqueous solution of salts when gradually cooled until complete solidification ensues.

Roberts-Austen has further shown that metals diffuse into other metals just in the manner as a salt in water. Thus a ball of gold immersed in a bath of molten lead at 550° diffused into the latter at a rate more than three times as great as that of sodium chloride into water at 18°. Similar results have been obtained with gold in molten bismuth, tin, silver, and lead in tin.

Moreover, diffusion takes place even in the case of solid metals, metallic gold contained in a cylinder of solid lead slowly diffusing into the latter at temperatures at least as low as 100°, the rate of diffusion increasing with the temperature.

Now, as all substances which conduct electricity give abnormal osmotic pressure, i. e., have apparently too many molecules present, and as the conduction of electricity by solutions is in virtue of there being ions present, formed from the molecules, then all electrolytes, i. e., salts, acids and bases, must, in solution, have ions present in them, and these act as molecules and increase the osmotic pressure. In infinitely dilute solutions the osmotic pressure is much greater than it should be, so we infer that in such solutions the molecules of the dissolved substance are approximately all dissociated into ions, each of which acts like a molecule in producing osmotic pressure.

A proof of this would be that the conductivity and the dilution of the electrolyte are mathematically proportional, and this has been rigidly proved.

It is found that barium is more completely precipitated as barium sulphate, if an excess of sulphuric acid is present in the solution. The presence of the numerous SO_4 ions makes it almost impossible that any barium should escape contact with one of them, and hence precipitation is practically perfect. As the chemistry of solutions has made such wonderful progress in the last few years, it seems to me that the chemical action which takes place between sodium chloride and water, alcohol and water, ether and water, are identical with the reactions which take place with the alloys and mercury, and the action of the SO_4 ions on the barium are analogous to the reactions which take place when we mix an excess of mercury with silver alloy to produce an amalgam.

A number of practical cases have been under my observation where silver fillings have been removed and cement or gutta-percha inserted, and I could not observe any constitutional change at all. I have removed silver fillings from the mouths of at least a dozen patients for conditions similar to those described by the essayist, and the results have been failures. The systemic troubles continued just the same. I remember one case in particular. I removed seven silver fillings for a lady in 1893, during the World's Fair, and filled them with cement. A year or two after this she went to Washington, remained there for a while, then came back west again. To my astonishment she had fourteen silver fillings in her mouth. She looked the picture of health, and she told me she never felt better in her life.

Another case was that of a young man for whom I made a lower gold plate, which he said he could not wear because it irritated his gums and caused an inflammation of them. I thought of making a continuous gum plate, but finally made a red rubber plate for temporary use, and he has been wearing it for seven years with perfect satisfaction, and his mouth is as healthy as that of the average patient.

Dr. G. W. Cook: I regret very much to have been put on the discussion of this paper. It was my understanding that the subject of mercury and amalgam fillings was to be discussed purely from a homeopathic standpoint. The essayist, however, has given us nothing new upon the subject, but has gone off into an ontological speculation of the Hahnemannic school, which is pure mockery to scientific thought. It is very strange, indeed, that other men drilled in scientific observation have not observed the symptomatic conditions described.

Dr. Hinkins, who has preceded me in this discussion, has shown us very clearly the chemistry of the mercury compounds and their relation to the other metals, especially in the formation of amalgams, and their relation to biological chemistry. It is well known that all metals in the free state have little or no influence on the life phenomena of many, not even as exhibited in the lower forms of life. A heavy metal, in order to act upon protoplasm, or to be acted upon by protoplasm, must be in a form capable of ionization, that is, it must come in contact with the protoplasm in the form of a salt, e. g., HgCl or $HgCl_2$, and an oxide of the metal, Hg_2O or HgO, or an hydroxide, $Hg(OH)_2$. Free metals are almost wholly incapable of passing into solution, but in combination with other elements in the form of salts, oxides and hydroxide, they are to a degree soluble, the ions being set free in the solution are capable of forming unions with the protoplasmic molecule, which union may be incompatible with the life of the molecule. The action may be purely chemical (corrosive action), or physio-chemical (osmotic action.)

From the more recent investigations on the chemistry of protoplasms (living matter), and the changes brought about in its life phenomena by changes in its normal environment, we must necessarily alter our conception of a poison.

Proteid, or living matter, is made up of highly complex proteid molecules containing certain metallic groups or ions. For instance, Na (sodium), Mg (magnesium), Ca (calcium), K (potassium), Fe (ferrum), etc., forming what we now call ion proteids—the life of the molecule depending upon the relation of the metallic ions in the ion proteid molecule, both qualitatively and quantitatively. It has been shown that metallic ion in the ion proteid molecule can be replaced by other metallic ions. Example: The frog's muscle placed in an $\frac{8}{10}$ normal NaCl solution. The life ceases sooner than in a solution of pure water for the reason that Na ions have replaced some of the potassium or calcium, thus changing quantitatively the ion proteid molecule and interfering with the normal equilibrium of the molecule. Therefore, a poison may be defined as any substance which is capable of ionization by the tissues and of substituting its ions for those normally found in living matter, either changing the activities of the ion proteid molecule or destroying its life altogether.

In regard to the inorganic substances, especially the heavy metals, as mercury, etc., the molecule is capable of ionization and before absorption takes place into the body it must enter into union with some proteid substance, forming what is generally called an albuminate. The dead ion proteid molecule is again ionized by living tissue and the metallic ion may enter into combination with the living ion proteid molecule by displacing several other ions or by addition of the metallic ion. But this dissociation cannot take place unless the metal is in a soluble state, or in a state which can readily pass into solution. This is shown very well in the actions of different ions in the proteid molecule—as, for instance, chloride of mercury (calomel) HgCl., which is very slowly soluble, and perchloride, $HgCl_2$, which is very readily soluble in water and in the fluids of the body; the former acts very slowly, the latter acts very rapidly, being quickly ionized by the tissue. But this is not the condition of the metal found in amalgam used in the filling of teeth. We have a union of metal partaking both of physical and chemical union, the combination being of certain definite proportions, as sodium amalgam (Hg_6Na), or six part of mercury to one part of sodium. Amalgam, such as used in dentistry, is not volatile, neither is it soluble in a solution of proteids at the ordinary temperature. If mercury was volatile or soluble, as contended by some writers, the definite composition of amalgam would be interfered with and the amalgamation destroyed. This is proven by the fact that if metallic mercury is placed in an albuminous solution and allowed to remain from twelve to forty-eight hours, traces of mercury are found in the solution; while if mercury is amalgamated with metal and placed in like albuminous solutions and kept at a normal temperature of the body, mercury cannot be found with the most delicate tests.

As an evidence of this statement, I performed a number of experiments to see if it were possible to at least find if there might be traces of mercury left in solution after letting the amalgam remain in solution for from ten days to six weeks. I will now give you somewhat in detail some of my experiments.

First, I mixed masses of amalgam, about what would be considered a large filling, placed them in test tubes in which there was about ten cubic centimeters of saliva. These tubes were then placed in the incubator and remained there until the amalgam had thoroughly set. They were then taken from the saliva tubes, carefully weighed and placed in tubes containing beef bouillon. They were then returned to the incubator and there remained for six weeks. The saliva in which they were first placed was carefully examined for mercury, in which there was not the slightest trace. To be sure that my own experiments were not biased, some of these tubes were carefully examined by Mr. Collins, of the Armour Institute, who reported that he found no mercury. After six weeks they were again carefully weighed and the bouillon also examined again for mercury, in which there was not a trace. The last weighing corresponded very closely with that of the first. Some of the masses weighed more than in the first case, while the others weighed a little less. The difference might be attributed to error in weighing. However, the variation was slight, only a milligramme or two difference.

Another series of experiments was conducted in which ten cubic centimeters of egg albumen had been treated with physiological salt solution; masses of amalgam were then mixed, weighing from two and one-half to three grammes. They were then placed in the incubator and allowed to remain there for two weeks, then taken out, and examined as in the case with the bouillon. Some of these tubes were examined by Dr. Rollins, Professor of Chemistry in the Illinois School of Dentistry. Some of the other tubes were sent to Mr. James A. Bishop, Professor of Chemistry in the Harvey Medical School.

CHICAGO, ILL., February 28, 1900.

DR. G. W. COOK,
City.

Dear Sir:—I have completed the analysis of egg albumen into which you placed samples of amalgam for experimental purposes.

I hoped by dialysis to completely separate all traces of mercury from the original solution, and having that metal in a solution of distilled water I should have no trouble in catching slight traces of it.

I first tried hydrochloric acid as a reagent, after which I tried hydrogen sulphide, but did not receive the slightest trace of mercury.

I then tried in regular succession ammonium hydroxide, sodium hydroxide, sodium carbonate and potassium iodide, and not one of the six reagents showed the slightest trace of mercury. I must, therefore, conclude that no mercury has dissolved from your amalgam so treated.

I am, very respectfully,
JAMES A. BISHOP,
Prof. Chemistry, Harvey Medical College,
Chicago, Ill.

The actions of mercury and the other heavy metals on the lower forms of life were then taken up. Some years ago Naegali discovered that a mere trace of copper proved fatal to the agal protoplasm. Miller and Behring found metallic gold could arrest development of bacteria. I was unable to find any statement by these investigators as to the amount of metal used in these experiments or the kind of microörganisms they experimented with. I first took eleven grains of metallic mercury, the same amount of gold, copper, lead and amalgam, placing them in tubes containing about five c. c. of beef bouillon. These tubes were placed in the incubator. I might say here that the microörganism used was the staphylococcus, and in forty-eight hours a well marked growth was found. I was very much surprised at the results of finding growths in any of these tubes, and especially so in the one containing metallic mercury.

The next series of experiments was about the same. The only difference was this: I used ten grains of the metals, and in this series used tin instead of lead. In this series of experiments one of the great surprises was to find that the tin had checked very markedly the growth in twenty-four hours, while a luxuriant growth had taken place in the other tubes. The third series was treated in the same way, using fifteen grains of all the metals; bacteria grew as well as in the ones only having ten grains of metal.

Some other experiments were followed out in which test tubes were dried, and in them I placed a mass of amalgam, as in the case of the other experiment. I then soaked filter paper in such tests as are used for mercury, namely, hydrogen sulphide, sodium carbonate potassium iodide, sodium hydroxide, ammonium hydroxide. These strips of paper were suspended in the tubes; they were stopped fairly tight, placed in the incubator, and temperature raised to 63° C.; allowed to remain forty-eight hours. No reaction took place, except in one case; that was a mass that had been mixed with excess of mercury present. These same tests with metallic mercury gave reaction at 53° temperature. In the former case we have a temperature of 23° above that of normal body temperature. In all these experiments we have used organic substances that the metallic ions have the greatest affinity for; then I have used the inorganic test to see if it were possible that there was a mistake. With these facts before us it would be absurd to say an individual must not eat meat for fear he would become poisoned by xanthin or hypoxanthin, which are very poisonous, and are present in most all the tissues and fluids of the animal body, or that you must not drink coffee or tea for the reason you will be poisoned with the caffein, and should you eat lettuce you will go to sleep because of the hypnotic effect of the lactucarium there is found.

Before closing the discussion on this subject I wish to relate a case that came under my observation which demonstrates very clearly the ability of the high potency homeopathist to diagnose and treat so-called nervous cases due to mercurial or supposed mercurial poisoning.

A gentleman presented himself to a dentist to have two oxyphosphate of copper fillings removed. He had been told by his physician that, owing to his inability to obtain the proper effects from the medicine administered, it was due, he thought, to these fillings, which he called amalgam fillings. The dentist did not remove the fillings because it seemed to him that they were serving their purpose well. But the next day the gentleman returned, insisting on having them removed. The dentist asked me to come and see the case, saying that it was one that he did not like to have much to do with. When I examined the mouth of the patient I saw large syphilitic mucous patches. I asked the gentleman at once how long it had been since he had had his first attack of syphilis, and he told me some seventeen years previously, but at that time his case was supposed to have been cured. The fillings, however, were not removed by the dentist at this time. The patient left the city, and a year later died of locomotor ataxia.

This case illustrates very thoroughly, I think, how much some of these men know about fillings and their effects upon constitutional conditions. Furthermore, the case illustrates about how many cases of nervous affections have come under the observation of these high potency homeopathists and how skillfully they have diagnosed their cases.

Dr. M. L. RHEIN: In attempting to discuss the paper upon the "Constitutional Effects of Amalgam Fillings and Red Vulcanite Plates upon the Human Organism," by Dr. H. W. Pierson, I am met with the difficulty of having been furnished with an abstract consisting of eight propositions and one conclusion. It is absolutely impossible for me to even surmise what the author of the paper will have to say and consequently I must crave your indulgence if any of my remarks should appear somewhat foreign to the points under discussion.

The essayist has followed in the footsteps of his homeopathic brethren, in attempting to trammel logic and science by the "small dose, high potentiality" theory. The attempt is unique, however, in that a statement of the case to be proved is first made, and is then succeeded by eight propositions—each a jewel of glittering generality—followed by a conclusion entirely irrelevant to the question at issue.

To be more specific, the essayist's stated motive is to show the constitutional effects of amalgam fillings and vulcanite plates upon the human organisms. The proposition having been stated (according to my synopsis), the author leads us through a maze of the pathogenesis of disease, dictionary definitions and Hahnemannian materia medica, only to round up suddenly with the conclusion that amalgam fillings and red vulcanite plates are injurious, not because they contain mercury but because they are foreign bodies and are therefore irritants.

As far as Dr. Pierson's abstract goes, it fails completely, even in an attempt to lift the burden of proof that rests on the shoulders of his homeopathic confrères. His eight propositions cannot be controverted; not even Hahnemann's verbose definition of vital force? They do not, however, postulate the conclusion that amalgam fillings cause evil constitutional results, any more than would the statement of any eight other heterogeneous facts.

It is not my purpose or intention to be dogmatic. I am fully alive to the fact that amalgam fillings, in common with all other fillings, may cause evil effects, and that plates poorly made and badly fitted may be the sources of great irritation. In all the many years that this bugaboo has been held over the heads of the dentists, no single case has ever been produced with proper corroborative evidence that would establish the fact that the patient had suffered from the toxic effects of mercury. To my perception this is the only aspect of the case worth considering. Is it possible for a patient to become poisoned through the absorption of the mercury in an amalgam filling or in an artificial plate made from red vulcanite? Any digression, such as the conclusion of the author's paper, is entirely foreign to the point of issue. We realize fully that fillings and artificial plates are foreign bodies that do not find their counterpart in the human organisms. As dentists we know that fillings and artificial plates properly made and inserted are of inestimable value, not only for the comfort of mankind, but for the preservation of life itself. Were we to adopt rationally the conclusion of the essayist and refrain from repairing a carious tooth because all fillings are foreign bodies with no counterparts in the human body, we would be denying the right of dentistry to exist as a science. Such a conclusion, the only one deducible from the essayist's paper, I am sure no single member of the Chicago Dental Society is willing to admit.

Leaving now this absurd hypothetical issue, let us return to the question of the possibility of mercurial absorption. The literature of our profession is replete with the details of case after case of constitutions undermined and broken down through the absorption of the mercury in amalgam fillings. The majority of these writers speak of the marvelous cures resulting from the removal of these amalgam fillings and their replacement by gold fillings. Some of these cases are attributed to various amalgam fillings in the one mouth, while others go so far as to lay the entire blame for the undermining of the patient's constitution on an amalgam filling as small as the head of a pin. All these cases are given without any proper proof or corroborative evidence that the patient has suffered from the absorption of mercury. They have all been the clinical conclusions of the individual writer formed on an empyrical basis without a grain of scientific evidence to bolster up an absurd doctrine. In discussing a paper of this kind read before the Medical Society of the County of Kings, by Dr. L. Tuthill, of Brooklyn, Dr. R. C. Brewster replied to the essayist in such an able manner that it is impossible for me to say anything more potent than to refer to the printed remarks of Dr. Brewster as published in the *Items of Interest* of April, 1899. In this discussion he goes into the detailed scientific investigation of amalgam fillings that have been made up to the present time, quoting from the experiments made by such men as J. H. McQuillen, T. L. Buckingham, John and Charles S. Tomes, J. Foster Flagg and numerous other careful investigators. The epitome of Dr. Brewster's remarks on that occasion shows that the most carefully prepared experiments with a view to determining the possibility of a loss in the quantity of the mercury in an amalgam filling after months of use invariably failed to show the slightest diminution in the quantity of such mercury. He very well demonstrates that if any of the mercury could be removed from a filling it would no longer be a fit stopping for a tooth. The only known way by which any of the mercury in a properly manipulated amalgam filling can be removed is by means of a degree of heat which it would be impossible for the human body to tolerate.

It is unnecessary at this day before an audience of intelligent dentists to reiterate all the proofs that have been brought forward to controvert this empirical doctrine. In conclusion, I would merely state that if in times past with some of the poor and useless amalgams that were foisted upon the profession, it were possible at times, for some tinkering dentist to insert a filling in which the alloys do not make a proper chemical combination, such conditions exist no longer. Mainly due to the scientific work of Prof. Black, the profession has to-day a variety of amalgams to choose from that are noted for their superiority in marked contrast to the amalgams in use thirty years ago, which latter, however, were nevertheless the means for the preservation of thousands of carious teeth without any injury to the system at large.

GENERAL DISCUSSION.

Dr. L. P. Haskell: This is a subject in which I have been interested for many years, and probably there is no gentleman present who has used vulcanite rubber as many years as I have. I began to use it within a year after its introduction some forty years ago, and I have used it ever since. About twenty-five years ago my attention was called to the poisonous effects of red vulcanite by Dr. W. B. Roberts, of New York, at which time he published an interesting article which he had read in one of the earliest dental journals—I think, *The Dental News*—and I have been interested in the subject ever since. I want to say that the cases that have come under my observation have been exceptional, and have seen but few, but they were marked and quite serious. I was associated with Dr. Allport at the time and he became interested in the subject, and was well satisfied that Dr. Roberts was correct, that the coloring matter, or vermilion, of red rubber constituted about one-third of the rubber plate and was deleterious. To make a long story short, I will relate several cases.

About twenty years ago, a lady, living at Topeka, Kan., was sent to me by a friend living here in Chicago. This woman had been suffering for eleven years from chronic diarrhœa, dating back to the time when she began to wear an upper set of red vulcanite. I placed in her mouth a metal plate, a continuous gum set. She returned home, and in about ten weeks she returned the plate to me with a broken tooth for repair, having dropped it accidentally. Unfortunately it was out of her mouth longer than it ought to have been, and it was about ten days before she received it again. Six months later, on a visit to Chicago, she called to tell me about the change that had taken place in her mouth. She had been treated eleven years by a physician for chronic diarrhœa. He was a homeopathic physician and had tried everything he could think of without any results whatever. Upon the removal of the rubber plate and the substitution of a metal one in her mouth, all symptoms of diarrhœa disappeared completely. She told me that when she returned the metal plate to me for repair and had replaced the old rubber one in the meantime, her symptoms began to reappear, and by the time she had received the new plate she was in as bad condition as previously; but upon the substitution of the new plate she had no further trouble from that source. I heard from her several years afterwards, and she was entirely well. She said that she had talked to her physician about it, and he said he did not know that there was any deleterious effects came from the wearing of a rubber plate in the mouth, but that he had been treating her for symptoms of mercurial poisoning.

The second case came through a student of the Chicago Dental College. He called upon me and I had occasion to place in his hands a little pamphlet which was a reprint of an article I wrote for the *Chicago Medical Journal*, calling the attention of physicians to the injurious effects of vulcanite rubber, thinking it might be of some aid to physicians in explaining symptoms of which they were unable to understand the cause. He sent it to his mother, as he told me that she had been suffering from chronic diarrhœa for a number of years and had been unable to find any permanent relief. She had been wearing an upper and lower red vulcanite plate. After reading my article, she came to Chicago, and the young man substituted gold plates, shortly after which the symptoms entirely disappeared. His mother then remained in Chicago and was associated with him in his office. I have seen her many times since, and she has assured me she had no recurrence of the symptoms. Her sister had precisely the same experience and favorable results.

Later on, Dr. Beebe, of Racine, a former student of mine, a graduate of Ann Arbor, a man of intelligence and of sound judgment, encountered a similar case. A lady came to him with a serious condition of her throat, difficulty of swallowing. She had consulted many physicians without obtaining any favorable results. Most of the physicians whom she consulted said that her trouble arose from the stomach. She consulted several dentists, and one said her trouble may have arisen from the presence of the rubber plate in her mouth, but could not say positively. She called upon Dr. Beebe, and he advised leaving the plate out of her mouth two weeks. This she did and the symptoms had very nearly disappeared. He then made her a black rubber plate. She had no further trouble until about six months later, when she called upon him and said that the trouble had returned again. In fact, she said her trouble had become so aggravated at one time that she could scarcely swallow, but thought she might give him a clew how it happened. She said she had been chewing rubber gum. As this has a considerable proportion of red rubber in it, the doctor told her that all she would have to do was to quit chewing the gum and she would have no further trouble. She did so and experienced no further difficulty.

If any of the members can explain these three cases on any other hypothesis, I shall be glad to have them do so. These are the facts in the cases, and facts are stubborn things.

Dr. W. H. Taggart: With reference to the last case mentioned by Dr. Haskell, I do not think I can advance any theory in opposition to it. In regard to the other two cases, there is a possibility that there was a decided difference in the ability of the dentists to make the plates. In other words, in the first case referred to by him, it is possible that the rubber plate did not fit well, that it was not well adapted to the tissues, whereas the plate made by Dr. Haskell fitted perfectly, because we know he is an expert in making plates, and that therefore the patient could masticate her food properly, and I have no doubt that the diarrhœa disappeared on this account. I have a patient who has never had a rubber plate in his mouth or an amalgam filling, yet for twenty-six years he has had a chronic diarrhœa. He was cured entirely by putting some bridge work in his mouth, and giving him a good masticating surface. Three months after the bridges were put in, the diarrhœa ceased. This case goes to show that the proper masticating surface alone corrected the diarrhœal condition. Could not the two cases which Dr. Haskell mentioned have been cured by the proper adjustment of these plates? Because, as a rule, the man who will make metal plates and advocate them will be a better dentist, and come nearer adapting plates to mouths and giving good satisfaction than the man who simply makes rubber plates.

As a rule, the larger amalgam fillings are the ones that are accused of giving off sufficient mercury to produce the unfavorable symptoms the homeopath complains of, and out of quite a number of cases that have been sent to me to have these objectionable fillings removed, I have invariably found, as we are quite apt to in the carelessly filled large cavity, sufficient cause for all the trouble the physician complains of. I mean both local and systemic trouble. Local trouble, on account of putrescent pulp, or packing of food between the teeth sufficient to disable that side of the mouth, and systemic trouble on account of the fact that it was utterly impossible to masticate the food properly on account of the local trouble, and these same unfavorable symptoms would have existed whether amalgam, gold, cement or gutta-percha had been thus carelessly used, and would have ceased to exist if any of the filling materials had been properly used.

Dr. P. J. KESTER: I must confess that I was disappointed in listening to this paper, because I have heard a great deal from time to time with reference to the disturbing elements that are found in amalgam fillings and red vulcanite plates, and I flattered myself that we should hear to-night the real reasons why these plates and fillings are injurious. I have had the suspicion that many of these cases were perhaps more imaginary than real. I have been disappointed in not hearing a definite and logical reason for the poisonous effects of amalgam fillings. If we admit the premises that all foreign substances are irritants *per se*, or that mercury in any form is inimical to the human economy, then there is no room for argument; but there has been nothing advanced in the paper which would lead me to change my opinion with reference to amalgam fillings. I agree with those who have preceded me in the discussion in regard to amalgam itself. Amalgam is a definite compound. If it were proven that mercury itself is very deleterious to the human economy, it is no good reason why amalgam fillings are harmful. We know that chlorine is one of the most irritating gases that comes in contact with the human economy, yet chlorine and sodium, properly combined, makes a necessary article of food. Admitting that mercury is deleterious, I believe that amalgam is a definite compound, having definite qualities and specific chemical affinities, and the product is an inert substance. If, as has been said, foreign substances are injurious, then gold fillings are just as injurious as other fillings, because they are foreign bodies. I am not an advocate of amalgam; I would a good deal rather put in some other filling material than amalgam. It seems to me that it is more artistic and satisfactory to the dentist to put in gold fillings. But there are other reasons for putting in gold fillings and taking out amalgam fillings than those that have been mentioned, in my judgment. I do not believe there are well authenticated cases where it can be shown that amalgam fillings disturb the economy in the slightest degree. If these fillings produce disagreeable conditions, they are generally due to the fact of improper manipulation by the dentist or dentists of the amalgam itself. For instance, a dentist may allow the amalgam to project over the gum; and in many cases the margins of fillings are not properly finished, then of course the amalgam acts as an irritant and disturbs the patient.

Dr. J. G. Reid: I tried to follow the essayist in describing the various symptoms that arise from mercury, and it would seem to me that he did not fully describe those conditions which occur from the constitutional administration of mercury. As far as I could follow him during the reading of his paper, he mentioned those symptoms which occur from the overuse of mercury administered internally, and those symptoms we all admit occur from the administration of such a poisonous drug as mercury. The doctor did not discuss the symptomatology of mercurial poisoning as fully as most homeopaths describe symptoms. I have read homeopathic text-books myself, and I know that homeopaths, as a rule, are very careful about describing symptoms of this or that disease, especially the spongy gums that occur around the teeth. It is very easy for physicians who are not familiar with the pathology of the dental tissues to get themselves into trouble, and this they do quite frequently. Dr. Pierson is conscientious in his work. I do not care to criticise his paper, because it was from his standpoint an admirable production, and one I am glad to have had the pleasure of hearing. However, I am satisfied that he does not know as much about the dental tissues as I do, and I will say that Dr. Pierson is evidently mistaken in his diagnosis as to the spongy condition that he so forcibly dwelt upon in his paper, brought about as he says very largely by amalgam fillings. It is very easy to be mistaken about what produced the conditions that the essayist mentioned in his paper after the administration of mercury. In criticising the essayist, I do it in all fairness and candor, not because he is a homeopathic physician, because I do not believe in isms myself. I believe in giving or doing a thing that will give a patient the most comfort and do the most good, and if a man wants a dose of mercury he ought to have it. He needs it, and I do not care to discuss the matter of whether a man is an allopath, a homeopath, or any other path, if you please, but I can conscientiously say that I do not believe I have ever seen a case of mercurial poisoning from amalgam fillings. If I have, I have been very much mistaken. I consider myself very observant, and I do not overlook conditions in people's mouths that I treat, and I must again repeat, that I do not recall seeing a case of mercurial poisoning from any amalgam fillings in my practice during the last twenty-four years.

Dr. A. E. Baldwin: This question is not a new one. It is one that has been discussed in and out of the profession for many years. When I was engaged in the general practice of medicine I read the experiments that had been made by several dentists, and I became firmly convinced at that time that the use of mercury in the mouth was necessarily harmful. I found, however, from increased experience and observation, which are excellent teachers, that we are very apt to attribute certain conclusions to certain conditions, or rather, we see certain changes, and we attribute those changes to some specific thing that we happen to know about, and oftentimes such conclusions are very misleading. There is nothing as misleading as to form definite conclusions in regard to the effects of medicines. Let us assume that a practitioner of medicine is called to see a sick person; he diagnoses the case; he finds certain conditions, and knowing his therapeutics and pharmacology well, he prescribes certain remedies, and in a short time the patient improves rapidly. Now, the natural conclusion would be that the medicine helped the patient. That physician, no matter how skillful he may be, could not go before a court, take an oath, and say that he *knows* that that remedy helped the patient. There may have been a great many other conditions which contributed to the improvement of the patient. It is possible that such a patient might have made a more rapid recovery if a physician had not been called. On the other hand, a physician equally as skillful may prescribe remedies for a patient, and the patient gradually sink and die. The patient might have died much sooner if the physician had not prolonged life by the administration of proper remedies. I call attention to that in order to show that there are other causes or conditions operating in the system. If we allowed the two or three cases cited by Dr. Haskell to force us to a conclusion, we might believe that the mercury in those fillings had a very deleterious effect upon those patients. I have had to do with patients who have come to me from homeopathic physicians saying that mercury was very harmful. I have advised them differently. I have had several homeopathic physicians as patients and have talked with them with reference to amalgam fillings. I am not an enemy of amalgam myself, and almost always, where I find one who is an enemy of it, I find he uses more of that material than I do. I am not an enemy of any filling material. As dentists, we should use judgment, and employ those filling materials which are the best for the needs of our patients. I have put amalgam fillings in the mouths of patients and have asked them to observe carefully any conditions that might develop after the introduction of these fillings, and I have not had a criticism from one of them. I had one patient who came to me at the instigation of her physician and said that she wanted all of her amalgam fillings removed and gold ones put in. I protested against it. However, I told her that if she insisted on it I would put in gold fillings after removing the amalgam fillings. She professed to an improvement in health from the changed fillings.

One could talk for an hour on the peculiar conditions which are met with in the practice of medicine, and which do not obtain from the administration of medicines in many instances. In some instances patients may not take the medicines we prescribe for them, and yet if a cure is effected, great credit is given the physician for doing the work. In many instances cures are almost miraculous, and the patients do not take any medicine at all. I speak of these things not for the purpose of finding fault with medicines, because they are proper. The physicians of the homeopathic and regular schools are nearer together than they were many years ago, simply because broader educations are making broader men and we hear less of "pathies" and of "isms." They are looking at things from a broader standpoint than they did formerly.

If we follow the paper of the evening very closely as to the conditions of the mouth caused by mercury, it would seem as if the essayist swung clear away from the main line, and that almost all abnormal conditions present in the mouth was cited, but more particularly the spongy, swollen, as well as atrophied condition of the gums, etc. There is much doubt in the minds of most practitioners that mercury is harmful in the fillings or plates, and the intelligent, observing dentist, one who profits by the observations of himself and of others, cannot help but come to the conclusion irresistibly that the so-called effects from vulcanite plates are not found as the author of the paper would have us believe, particularly if they are well and smoothly finished and adapted to the tissues of the mouth. Mental effects are present oftentimes, as was cited by one of the speakers in regard to amalgam fillings. Doubtless that physician was in error, and these fallacies are not borne by homeopathic practitioners alone. Some of the regular physicians are just as foolish in that particular as any homeopath can be, so that the blame is not to be attached to any one school. The field of the physician is a broad one, and if we were only half as broad in our work as are the physicians, we would accomplish greater good, and I think we would be a little more accurate in our expressions. One of the speakers referred to amalgam fillings as silver fillings. We ought not to use such inaccurate expressions. Another gentleman spoke of chloride of sodium as a food. I do not think he intended to say this.

It seems to me that the conclusion must be irresistibly forced upon us, that while the essayist is sincere in his criticisms, yet a longer and closer observation will teach him that his conclusions are erroneous.

In treating patients we should bear in mind the peculiar idiosyncrasies of some people, and also the elements of suggestion as carried out in the practice of medicine. These two things are very important and should always be kept in mind.

Dr. E. S. TALBOT: I was very much pleased to receive an invitation to come here this evening and hear what was to be said on this subject. Perhaps most of you know that for the last twenty-five years I have been experimenting more or less with regard to mercury and its effects on the tissues of the mouth, and I thought I knew something about these structures and drugs. Like the gentlemen who have preceded me, I was very much disappointed in the paper of the essayist. I could not see that there was any connection between his paper and amalgam fillings and rubber plates. It is true, he gave us a good illustration of the action of mercury upon the system and upon the tissues, but as far as I could learn, he said very little or practically nothing about the effects of amalgam fillings and rubber plates in the mouth. Some thirty years ago, as Dr. Haskell has already said, they did put vermilion or mercury in rubber plates, but in looking around the room and noticing so many, I question whether there is anyone who has practiced less than that period of time who has ever seen that particular kind of rubber plate or plates on the market. I question to-day if there is a bit of rubber on the market that contains the least particle of metallic mercury, although I am not positively sure about this. Prof. Wildeman, of Philadelphia, about thirty years ago made a large number of experiments on rubber plates, and out of hundreds he found but one case where the action of heat produced pure mercury.

With reference to amalgams, we are not quite sure whether it is a chemical or mechanical union that takes place. Within the last two years it has been found that a decided change occurs in the chemistry of amalgam. If mercury has any effect upon the tissues of the body at all, or upon the system, it must be taken into the system in the form of the metal. Mercury acts in two ways. It acts upon the sympathetic nerves, and it acts directly upon the blood, producing irritation in the peripheral arteries and nerves. An amalgam filling undoubtedly gives off the vapor of mercury, and the vapor of mercury affects animals and man. I have visited the mines in California and in southern Spain, and I know from actual observation that the vapor of mercury does affect the animals (mules and horses) that are used in the mines and the miners themselves; that it affects the alveolar process, the gums and the teeth, in that the latter become loosened and drop out. In some cases where the individual has had syphilis, or where individuals have been mercurialized before, occasionally necrosis of the tissues will take place.

Some twenty years ago I made a series of experiments with mercury and with amalgam fillings, placing the mercury in bottles, and then using the ammonio-nitrate of silver test, which is the most delicate test for mercury. Ammonio-nitrate of silver was used by writing on white paper, placing the paper over the receptacle in which the mercury was placed, and if there was any vapor of mercury it would turn the writing black. This is a simple method of testing the evaporation of mercury. I found there was evaporation of mercury in these experiments. The experiments were conducted under the supervision of Prof. Haines, of Rush Medical College. After I had found there was vapor of mercury, believing first that that was the only way mercury could be taken into the system, I experimented for two or three years on animals. I took the roach or water bug for the purpose of my experiments. I took one as a check, and then I submitted these animals to the vapor of mercury, and in every case death of the animal which was situated in the mercury would occur before the death of the animal which was used as a check. I then took rats and used pure mercury, because in amalgam fillings there was not a sufficient quantity of it. Inside of two weeks I invariably produced paralysis agitans. Before I proceed any further, I desire to say that the first symptom of mercurial poisoning upon the tissues is invariably paralysis agitans, the mercury expending itself upon the nervous system, and after that the gums become involved, and then the alveolar process. These experiments were carried on later by using guinea pigs, with the same results. The mercury was placed in a glass jar six inches in diameter, and six inches high. A flat piece of gauze was placed about three inches above the mercury and the animal placed on that. We took another animal as a check, and in every instance in from eight days to two weeks paralysis agitans developed in these animals.

Many of you know that in the last five years I have been doing considerable work in regard to the mouth and alveolar process. This work has been principally done upon dogs. This work was done for the purpose of finding out what tissues were first involved in the action of mercury. The dogs were treated with mercury in different ways. Some of them had the mercury rubbed into their limbs, others were given mercury by the mouth, and still others were given hypodermic injections. Invariably there was produced paralysis agitans first, and afterwards the tissues became involved. The tissues of these animals were examined under the microscope by experts, and it was invariably found that the action of mercury was to produce inflammation of the gums and of the capillaries of the alveolar process.

Let us look at the tissues in their relation to the action of rubber plates in causing inflammation, etc. We must not forget that the alveolar processes are transitory or temporary structures, and that there is a natural process of getting rid of them. It would consume too much of your time to discuss this phase of the subject, so I will not attempt to do it. These structures are easily absorbed. Let me call your attention to the fact that after the teeth are extracted and a plate is placed in the mouth, how quickly the alveolar process becomes absorbed in a large proportion of cases. In other instances, it will not become absorbed so rapidly.

To return to plates. When a plate is placed in the mouth, whether of red rubber, black rubber, or of gold, there are certain people who are susceptible to certain conditions, and under those conditions the alveolar process will become absorbed; inflammation takes place more quickly in some mouths than in others, consequently absorption goes on more rapidly in some instances than in others.

I am going to anticipate something I have done this winter in regard to the absorption of the alveolar process. I am going to tell you that absorption of the alveolar process is a process of inflammation; it makes no difference whether the process is absorbed after extracting teeth, in regulating teeth, or whether it is absorbed by the eruption or implantation of teeth. The process is precisely the same in every case, it being essentially an inflammatory one. There is no physiological absorption, as I had supposed until this winter. When rubber or gold plates are placed in the mouth, if they are not made properly, if they do not fit well, taking into consideration the condition of the system, absorption will go on, irritation will be created, an inflammation will commence first in the gums, because the ends of the peripheral nerves and of the capillaries center there. Stasis occurs, and if you will look at my work on "Interstitial Gingivitis," you will notice that inflammation starts in the capillaries of the alveolar process and in the gums, and then absorption takes place. I do not believe that amalgam fillings—although I thought so at one time—have anything to do with the mercurialization of the system. I do not see how it is possible for rubber plates to have anything to do with it because there is no free metallic mercury in them nowadays. There used to be mercury in these plates as manufactured thirty years ago. Now the coloring matter is different. The inflammation is due to heat and irritation. Heat and irritation will produce inflammation, puffiness of the gums, and absorption of the alveolar process.

Dr. Thomas L. Gilmer: I was disappointed in listening to to Dr. Pierson's paper, because I had expected that he would give us something more definite. In what I may have to say I can only speak from personal clinical experience and observation. During a practice of twenty-eight years, and I think I have been a moderately careful observer, I have never seen a single case of mercurial poisoning which could be attributed to amalgam fillings or vulcanized rubber plates or any of the peculiar symptoms resulting therefrom indicated by the essayist. I think oftentimes that when the homeopathic and general practitioner cannot find a rational cause for a disease or cannot make an accurate diagnosis, they are likely to make a scapegoat of the teeth. Now, the regular practitioners of medicine frequently refer cases to dentists when they believe the teeth are at fault, and after treatment the patient gets well. The homeopaths send their patients to dentists, ordering amalgam fillings taken out of their mouths, and in some instances after this is done they get well. I believe in many such cases in both instances the cure comes about wholly from suggestion. I have had two experiences recently which suggestion, however, could not have cured. A patient presented himself to me stating that he had a severe pain in the side of the face. He had facial neuralgia. His physician, who was a homeopath, had said that the pain was due to an amalgam filling in the anterior surface of the first molar. I did not believe that this was true. However, I gave the matter careful consideration and examined the patient's mouth critically. There was an amalgam filling in the anterior surface of the first molar, which the physician had seen, and a gold filling in the posterior surface of the same tooth. In using explorers I found underneath the gold filling at the gingival margin a cavity which extended into the pulp. There was a pulpitis. I removed the gold filling, destroyed the pulp, and refilled the cavity with amalgam, and the patient was cured, although now he had two amalgam fillings when he had but one when he came. The physician in this case was mistaken; his diagnosis was not correct.

Another case was that of a lady who was a great sufferer from facial neuralgia. She had been having the lactic acid treatment for the cure of pyorrhea, a condition which I think Dr. Pierson described as being caused by mercury. At any rate he described pyorrhea quite accurately, and said it was one of the results of mercurial poisoning. I believe if he will study the diseases of the teeth, jaws and gums a little more thoroughly he will change his mind regarding the poisonous effect of amalgam fillings. In the case just mentioned the pyorrhea had been partly arrested, but there was softening of the teeth near the gums and excessive irritation about the roots, as a result of the acid. This patient had also been in the hands of a homeopath, and had received various remedies from him, but his medicines did not bring about a cure, and as there were no amalgam fillings to attribute the pain to he was at the end of his row. Later she fell into the hands of a regular physician, but with no better results. She was referred to me; I found the cause of the neuralgia, and removed a number of defective gold fillings, destroyed several pulps and she was cured. Several of the teeth were in such a bad condition that I did not think it was wise to refill them with gold, but used amalgam instead. The patient was cured by destroying the pulps of these teeth, not by removing the gold fillings nor putting amalgam in her mouth.

With reference to rubber plates, I made a rubber plate for a patient a number of years ago, and very soon after he commenced wearing it there was extreme salivation. He had so much trouble that I concluded possibly there might be something in the theory of red rubber causing mercurial poisoning. I removed the rubber plate and made a plate wholly of gold, and he was just as much annoyed with the gold plate. He was never able to wear either a gold or rubber plate. This proves nothing, but it shows how easily we can be deceived unless we are careful.

I was very much surprised to hear the doctor say in his paper that a cause of decay of teeth is brought about by the action of mercury. To me this was the greatest surprise of any part of the paper, because to-day we know positively there is but one cause of decay, that is the acid-forming fungus. I think if the essayist will carefully study prehistoric skulls he will find a condition of the alveolar borders of the jaw among them which will show some of the same conditions he has described as resulting from amalgam fillings.

Dr. George W. Cook: The remark of Dr. Talbot with reference to the effects of mercury on the peripheral nerves is very startling to me, because I have consulted the literature of the subject for more than a hundred years, and no observer or toxicologist has found any such effects. It is claimed that the early recognition of the effects of mercury is to be found in the fauces and the alimentary tract.

Dr. W. V-B. Ames: I desire to call attention to a possible cause of mercurial poisoning of a patient of rare susceptibility, by the wearing away by attrition of one of those old-fashioned red rubber plates. Those of you who have been familiar with such vulcanite will remember that it was given to wearing away badly where the attrition of mastication came into play and a red discoloration could be obtained upon a white cloth by a rub across the plate. Is it not possible that, in a case of rare susceptibility, there might be an effect from this amount of the mercurial compound taken into the system?

When Drs. Talbot and Haines published the results of their experiments, to which reference has been made, the prevailing criticism was that the poor dumb things had been starved and asphyxiated. A dozen or more years ago, after these experiments, I tried to verify some of them by the ammonio-nitrate of silver test and otherwise. My conclusion was that the ammonio-nitrate of silver test was wholly unreliable, and in submitting large quantities of amalgam and of mercury (ounces) to a temperature of 150° Fahrenheit for thirty days, there was not the least perceptible evidence of loss.

I must say that since this experience I have been less inclined to swallow, without salt, all records of experiments.

The poisoning of human beings and animals working about cinnabar mines and stills has no bearing upon our subject. In the mine sufficient dust is inhaled and swallowed to account for the results, and in the distillation of the mercury from the ore a temperature is employed which need not concern us in the consideration of this subject.

There seems to have been a desire on the part of our program committee to have a paper on the constitutional effect of the mercury in amalgam fillings. Well, we have had it, and now we will go right on using amalgam without any more consideration than heretofore of the baneful effects of mercury.

MR. BREWSTER: *Mr. Chairman:* I understand that it is Dr. Dunn's special request that I should give the society an account of the process employed in the manufacture of dental rubber. I have much pleasure in complying.

The ingredients entering into the composition of base plate rubber are, India rubber, sulphur and vermilion. The India rubber, as received from the gatherers, is softened in hot water, is then cut up and passed through grooved steel rollers under a running stream of water to cleanse it from impurities. It is then hung up in drying rooms until all moisture has been dried out, and afterward subjected to treatment in a "masticator" (a steam-heated machine) until it becomes plastic, and of one consistence throughout. It is now ready for the incorporation of sulphur (necessary for vulcanization) and the vermilion; these are incorporated with the rubber by repeatedly passing through steel rollers. The various shades of base plate rubbers are determined by the quantity and original color of the vermilion used.

Pink rubber, in addition to the vermilion and sulphur, contains a pigment—usually zinc—to overcome the natural blackness of the rubber, and, of course, contains more vermilion in proportion to its weight than do the base plate rubbers. Pink rubber, as you are aware, is heavier and has much less tensile strength. Pink rubber can be made without the vermilion, and when so manufactured will usually stain the plaster of paris in vulcanizing.

When I undertook the manufacture of shaded rubber in 1891 for the inventor, Mr. Gear, the problem presented itself of shading from a very light, delicate pink to a dark shade, in a narrow strip. I succeeded in incorporating as many as fourteen different shades in a strip three-fourths of an inch wide, each shade blending with the other, but such delicate shading is not possible with vermilion alone.

Vermilion, as you are aware, is the sulphide of mercury, produced by heat, the difference of tint being due to the degree of heat to which the mercury and sulphur have been subjected in the process.

Black rubber, which vulcanizes a sort of horn color, is perhaps the only base plate rubber manufactured without vermilion or other coloring matter.

In dealing with cases of inflamed mouths, where colored rubber plates have been worn, it might be well to substitute a plate of pure black rubber (that is, black rubber without any coloring matter whatever); it should then not be difficult to determine whether the inflamed condition is due to mercurial poisoning by vermilion, or simply by the presence of a material with so little conductibility as pure rubber.

Dr. George B. Perry: During the World's Fair year we had practicing in this city a homeopathic dentist, a man who was very much averse to the use of amalgam in any form. He always removed amalgam fillings and replaced them with gold, porcelain or cement. I had several arguments with him as to the deleterious effects of amalgam and its use as a filling material. Frequently headaches, it is said, are caused by the presence of amalgam fillings in the mouth. A young man eighteen years of age came to my office one day and I examined his mouth carefully, finding twenty-two amalgam fillings. I questioned him closely as to how long these fillings had been in the mouth, and as I now recall it, the time varied from four to eight years. I asked him whether he had ever been troubled with headaches, and he replied no, not until a week previously. I then questioned him as to what he ascribed the cause of his headache, and he thought he had eaten something which disagreed with him, or that probably the headache was due largely to indigestion. I asked him if he felt any unpleasant effects which he thought he could trace directly to the presence of amalgam fillings in his mouth, and he said no. I left them as they were and the last time I saw him, he had had no further recurrence of headache.

Dr. F. N. Brown: A suggestion came to my mind in regard to testing whether there is any mercury in rubber plates after vulcanization, sufficient to cause constitutional effects. How would it do to gather a large number of vulcanite plates and endeavor to distill for any mercury present. I very much doubt if a vulcanite plate contains any free mercury. Therefore if some capable man, with the necessary apparatus, would carry out this test, if there is any mercury present, he would certainly get it.

Dr. Cook: We were unable to obtain any traces of mercury in our experiments from any of the vulcanite plates made by different manufacturers.

Dr. Brown: Did you consume the plates, and endeavor to secure the mercury by distillation?

Dr. Cook: Proper tests were made, and if any mercury was present it would have been found.

Dr. Pierson (closing the discussion): We intentionally avoided the practical application of amalgam fillings and red vulcanite plates to the human organism because our knowledge of its action was extremely limited. We only brought to you the results of our own investigations with reference to the action of mercury. It is immaterial, so far as we are concerned, whether there be mercury in amalgam or whether the mercury in the amalgam be liberated or not, if we can find, following its presence in the human organism, symptoms similar to those produced by mercury, and we can eliminate from the case every factor that might show the contaminating influence of mercury from any other source, we simply reason that this must be the contributing cause. Bear in mind the further statement that without question a certain proportion of individuals fail to show any physical evidences of any deleterious effects from either amalgam fillings or red vulcanite plates for many years and then we may find a condition of ill health very strongly suggestive of the insidious workings of mercury. I have no desire to take up the bacteriological tests, although we have evidence from as skilled investigators as the world knows to-day that the billionth part of a grain of copper is capable of destroying algae in water. We have evidence where simply the placing of gold coin in a porcelain vessel, in the presence of some low forms of vegetable life, death followed. The cause and effect will be left for each and every investigator to determine. In presenting our side of this question for discussion, we desired to bring that knowledge which we have, and was exceedingly glad to listen to the evidence presented for and against the theories advanced, believing that such investigations will ultimately lead to conclusions that will be of benefit to mankind. It is evident from the reports given here to-night that there are cases in which the preponderance of evidence points just as strongly to this cause as to any other, and it is begging the question when any one denies the potential cause of this substance in the case. I have no desire to go into the chemical actions and reaction of mercury, but one factor is omitted from all tests in the chemical laboratory which destroys the force of their argument, namely, the *absence of the potentiality of the life force or energy*.

ST. LOUIS DENTAL SOCIETY.

Dr. H. M. Hill read a paper entitled "The Porcelain Inlay."

Discussion of Dr. Hill's paper opened by Dr. B. L. THORPE: I have not had any experience in fused inlays, and, as the essayist deals especially with this inlay, I am not prepared to speak from an intelligent standpoint.

All the porcelain inlays I have inserted have been ground inlays or the Howe pencil inlays. Very good results may be had by preparing the cavity in labial or buccal cavities with a round bur, thus making the cavity of uniform size. Select an Ash tooth, break it until it approximates nearly the size of the cavity. Mount on mandril with sealing wax by placing mandril in handpiece. The tooth is turned against a carborundum stone until the porcelain is perfectly round. By trying it in the cavity frequently an accurate fit may be obtained. Pumice stone and water are used in the cavity, and the porcelain, still on the mandril, is revolved in the cavity until the margins of both cavity and porcelain are polished. The dam is applied, cavity dried thoroughly, inlay roughened and cemented to place.

After twenty or thirty minutes the porcelain should be polished with cuttlefish disks and polishing powder. This method was demonstrated at the interstate meeting five years ago by Dr. Wm. Coston, of Fort Scott, Kan., and has proven a very good method to those who practice it. Another method used by some operators is the Howe porcelain pencil inlays, furnished by S. S. White. These are used on the same plan as the method just mentioned, excepting doing away with mounting the porcelain on a mandril.

If carefully done a good result may be obtained. The operation is a tedious one, requiring much time and patience. The result, however, equals the method suggested by the essayist.

The materials now on the market may be improved upon, but I doubt if their basic characteristics will ever be much improved.

Unless one has the Jenkins outfit, it is a hard matter to correctly match the shade of the natural teeth. The cement is another vital question regarding the durability of the inlay. Whenever we get a cement that will stand the secretions, then and then only will inlay work reach its ideal both from an artistic and a tooth-saving standpoint.

The majority of inlays I have seen have had a goodly cement line exposed. Where this occurs there is bound to be a failure. In my opinion, the best inlay is the gold foil inlay, commonly called a gold filling. I cannot agree with the essayist in his belief that a cutting edge restored with porcelain without pins baked in it will stand the force of mastication. Neither do I believe that inlay work is a success in *all cavities*, even in the anterior of the mouth. I do believe that in labial or buccal cavities where there is no stress on the inlay and where the cement line is obviated they are a success.

One point worth your remembering is the ingenious disk suggested by the essayist, made of sheet copper attached with soft solder to an old bur, lubricated with glycerine and carborundum powder. The disks can be made in a few minutes and are invaluable in grooving inlays or cutting cavities in porcelain teeth.

Another good point is that of using oxide of zinc for polishing the inlays. This is the same powder White sells for seventy-five cents a box; it is also valuable in polishing the natural teeth on cleansing. The method the paper advocates cannot be easily done. It requires time (which should be no object), patience, skill and long practice before half way successful results can be reached. Cleanliness is another absolute essential.

The dental profession, like all other institutions, has had its day of eras. We as a profession have passed through the amalgam, gold foil, celluloid, rubber, and gold crown and bridge era and now the porcelain era has dawned upon us. With its coming great things are promised; greater possibilities are opened.

Dr. Maynard, of Washington, D. C., was the first dentist recorded to use the porcelain inlay which he secured in place by filling around the margins with cohesive gold. This method did not come into general use. Such men as Jenkins, Land, Head and Capon have done much along original lines to make porcelain art what it is to-day, and I am glad we have some men in our own society who are following in their footsteps, and are endeavoring to make professional advancement.

NEW JERSEY STATE DENTAL SOCIETY.

The thirtieth annual meeting of the New Jersey State Dental Society will be held at the Auditorium, Asbury Park, N. J., commencing 10 A. M., Wednesday, July 18, continuing the 19th and 20th.

Five excellent papers by well known dentists have been secured and as usual the features of the clinic on oral work, prosthetic dentistry, electrical furnace porcelain work, gold crowns, bridges and allied subjects will be interesting to instruct and please all members and visitors.

The exhibits in the large hall of the Auditorium will be the largest and most comprehensive ever before attempted by the society.

The clinic will be under the personal supervision of Dr. Frank L. Hindle, of New Brunswick, and aids, and the exhibits under Dr. F. Edsall Riley, of Newark, and aids.

The headquarters will be in the Hotel Columbia, adjoining the Auditorium, at the rate of $2.50 or $3 per day. The profession are invited to participate.

CHARLES A. MEEKER, D. D. S., *Secretary.*

HERBERT S. SUTPHEN, D. D. S., *Assistant Secretary.*

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

TOO CONTEMPTIBLE.

The *Dental Digest* for April has for its sole editorial one entitled "Harlan, Holbrook and Hunt—The Disgraceful Triumverate." It is too contemptible to be dignified with an answer. We are not adepts in Billingsgate.

THE NATIONAL DENTAL ASSOCIATION.

We hope our readers will bear in mind that this—our only National Association—will meet at Old Point Comfort, July 10 to 13, inclusive. A very attractive program is in preparation and the location is delightful. The hotels are good. Hygeia and Chamberlain both first class.

THE DENTAL CONGRESS AT PARIS.

Elsewhere the reader will find a partial list of essayists and clinicians from the United States. Several papers have been promised direct to the management at Paris, so it will be found that this country is well represented in both departments. From present advices there will be about two hundred from this country who will be in Paris. Everything will be done to ensure the comfort of visitors. A prospective visitor will receive attention by applying to any member of the reception committee.

INTERNATIONAL DENTAL CONGRESS, PARIS, FRANCE, AUGUST 8 TO 14, 1900.

The following papers will be read at Paris by the undermentioned gentlemen:

A. K. Fort, D. D. S., Atlanta, Ga., "The Influence of the Saliva on Bacterial Growth in the Mouth."

W. A. Price, D. D. S., Cleveland, Ohio, "The Science of Dental Radiography." (Illustrated.)

Richard Grady, M. D., D. D. S., Baltimore, Md., "Instructing Our Patients in the Care of the Mouth and Teeth."

R. R. Andrews, A. M., D. D. S., Cambridge, Mass., "The Development of the Enamel."

Geo. W. Cook, D. D. S., Chicago, Ill., "A Bacteriological Study of Pyorrhea Alveolaris."

C. S. Case, D. D. S., M. D., Chicago, Ill., "Important Principles in Dento-Facial Orthopedia."

R. H. Hofheinz, D. D. S., Rochester, N. Y., "Our Preliminary Educational Deficiences."

E. H. Angle, M. D., D. D. S., St. Louis, Mo., "The American Type of Dento-Facial Deformity."

J. E. Hinkins, D. D. S., Chicago, Ill., "The Chemical Action of Cements in the Mouth."

I. N. Broomell, D. D. S., Philadelphia, Pa., "The Source of Nutrition of the Dental Pulp."

T. W. Brophy, M. D., D. D. S., LL. D., Chicago, Ill., "Surgical Treatment of Palatal Defects."

W. C. Barrett, M. D., D. D. S., Buffalo, N. Y., "International Dental Ethics."

B. Holly Smith, M. D., D. D. S., Baltimore, Md., will open the discussion on education."

Jonathan Taft, A. M., M. D., D. D. S., Cincinnati, Ohio, "Dental History."

A. W. Harlan, A. M., M. D., D. D. S., Chicago, Ill., "Pulp Digestion."

E. R. Warner, M. D., D. D. S., Denver, Colo., "Some Phases of Mummification."

It is expected that a few additions will be made to this list.

The following gentlemen will give clinics:

CLINICS.

W. V-B. Ames, D. D. S., Chicago, Ill., Some possibilities of new process oxyphosphate of copper.

Gordon White, D. D. S., Nashville, Tenn., A compound filling, using in the cavity tin, Abbey's noncohesive gold and Nickold's cohesive gold.

Joseph Head, M. D., D. D. S., Philadelphia, Pa., Porcelain inlays.

Alfred Owre, M. D., D. M. D., Minneapolis, Minn., will prepare A step cavity in an incisor or bicuspid and fill same with De Trey's crystal mat gold (solila).

Joseph W. Wassall, M. D., D. D. S., Chicago, Ill., The treatment of septic pulpless teeth.

Hart J. Goslee, D. D. S., Chicago, Ill., Porcelain crown and bridge work.

Robert Good, D. D. S., Chicago, Ill., Porcelain bridge work.

V. H. Jackson, M. D., D. D. S., New York, Jackson's System of constructing appliances for the correction of irregularities of the teeth.

Levitt E. Custer, D. D. S., Dayton, Ohio, The electric oven and electric gold annealer.

W. E. Griswold, D. D. S., Denver, Colo., A removable crown for the support of saddle plates and bridges.

E. K. Wedelstaedt, D. D. S., St. Paul, Minn., Gold filling; mesio-occlusal cavity in upper first molar, demonstrating Dr. G. V. Black's method of: 1. Cavity preparation; 2. Extension for prevention; 3. Occlusal anchorage; 4. The use of annealed and unannealed gold; 5. Method of finishing (using the Black saw and finishing files); 6. Proper contact; also, 7. The scientific application of the rubber dam; and 8. The Wedelstaedt system of measurement and its application to cavities in the human teeth.

Frank Holland, M. D., D. D. S., Atlanta, Ga., Cohesive gold filling.

T. W. Brophy, M. D., D. D. S., LL. D., Chicago, Ill., Surgical treatment of congenital cleft palate.

There are three or four additional clinicians to be heard from.

W. E. GRISWOLD, A. W. HARLAN,
Secretary. *Chairman.*

DENTAL COLLEGE COMMENCEMENTS.

ILLINOIS SCHOOL OF DENTISTRY, CHICAGO, MAY 4.

GRADUATING CLASS.—P. A. Armstrong, P. M. Beach, Fred Bissett, Henrietta Christiansen, C. D. Cook, H. S. Dowell, B. A. Edwards, C. A. Finley, A. V. Garretson, Hermann Grossman, Chas. Hansen, A. S. Hague, John D. Heckman, Thomas S. Hollis, J. J. Jankowski, C. E. Jones, O. P. Morse, W. D. Murto, Elgin Neal, F. C. Roe, Geo. B. Sinclair, C. J. Winder.

THE COLORADO COLLEGE OF DENTAL SURGERY.

GRADUATING CLASS.—T. J. Bovara, Colorado; R. N. Culver, Missouri; J. S. Dean, California; H. A. Elmquist, Iowa; A. E. Goodwin, Wisconsin; D. Hopkins, Colorado; E. A. Schlabach, Ohio; W. E. Sanderson, Colorado; G. Seeley, Colorado; L. A. Walker, Ohio; A. A. Wallace, Colorado.

EIGHTEENTH ANNUAL COMMENCEMENT THE KANSAS CITY DENTAL COLLEGE, MONDAY AFTERNOON, APRIL THIRTIETH, THE AUDITORIUM, KANSAS CITY, MO.

GRADUATING CLASS.—W. E. McCue, Adolph Michaels, C. L. Connolly, G. Deal Wertz, Fred E. Iserman, H. C. Weddle, J. C. Park, Geo. B. Humfreville, R. A. Bowers, Joe Tomiska, Thos. M. Robertson, David Walker, Ernest L. Loring, Eugene B. Peirce, Geo. H. Keim, Claude L. Mayes, W. E. Austin, C. E. Hazen, A. E. Gonard, Alfred E. Stratton, J. K. Bishop, Chas. Pomeroy Warner, Monty Gauts, J. A. Dillon, H. K. Euloe.

MARION-SIMS COLLEGE OF MEDICINE—DENTAL DEPARTMENT, FRIDAY EVENING, APRIL 27, 1900.

GRADUATING CLASS.—Louis Charles Burgard, St. Libory, Ill.; John Keane Conroy, St. Louis, Mo.; Joseph Bennon Crist, Marquette, Kan.; Robert Harry Davis, Williamsburg, Ky.; Paul Ewald Eckhardt, St. Louis, Mo.; Emanuel James Garcia, St. Louis, Mo.; William Wetzel Gardiner, St. Louis, Mo.; Louis Edward Hudson, Memphis, Mo.; George Chapman Jones, Jr., Pilot Grove, Mo.; George Marona Lark, Red Bud, Ill.; George Herman Mathae, St. Louis, Mo.; John H. McCain, Little Rock, Ark.; Florence Muriel McAlpine, Vancouver, B. C.; John Lacey McClean, St. Louis, Mo.; Adolph Lincoln Marks, M. D. (College of P. & S., 1897), St. Louis, Mo.; Paul Edward Pepper, Vaughan Station, Miss.; Edward John Pohle, B. S. (Northern Illinois Normal, 1896), Bloomington, Wis.; Louis Fitz Popp, Perryville, Mo.; Frederick Rudolph Roemer, Centralia, Ill.; Dell William Shaul, Ph. G. (St. Louis College of Pharmacy, 1897), Greenfield, Ind.; Jacob Schuck, St. Louis, Mo.; Howard Virgil Solis, Olney, Ill.; William Marion Wilson, Ph. B. (North West Missouri College, 1896), Lone Star, Mo.; George Ben Wade Winter, St. Louis, Mo.; Arthur Edward Wood, Rolla, Mo.

MISSOURI DENTAL COLLEGE.

The Thirty-fourth Annual Commencement Exercises of the Missouri Dental College's Dental Department of Washington University were held at the Germania Theater, St. Louis, Mo., on the evening of April 26, 1900.

The address to the Class was made by Dr. John Egbert Nyman, of Chicago.

The degree of D. M. D. was conferred by Chancellor Chaplin of the University upon the following named gentlemen:

Andrew Jackson Bass, Mo.; Alfred Gotfried Bauer, Mo.; John Emil Charles Bey, Mo.; Wesley Baxter Dickson, Mo.; Freeland Joseph Dunn, Mo.; Houston Everett Ferrell, Mo.; John Michael Hartmann, Ohio; Albert William Heitzig, Mo.; Robert Oscar Hirschi, Mo.; Edward Linn Horton, Mo.; Leonard Quirin Henry, Mo.; Mauzey Whitfield Isle, Mo.; Howard Augustus Kehde, Mo.; Louis Henry Kraft, Ill.; Benno Edward Lischer, Ill.; Joseph Elmer Long, Ill.; Eugene McGuire, Ill.; Elmer Hicks Matkin, Mo.; Charles Lewis Merriweather, Mo.; Jacob Block Pettibone, Mo.; Bland Nixon Pippin, Ind.; Elmer Henry Schwarz, Ill.; Handy Linn Smith, Mo.; Arthur Martin Stockhoff, Mo.; Frank Powell Stone, Mo.; Clarel Shipherd Straube, Mo.; John Arthur Wavrin, Iowa; Albert William Wolf, Ill.; Harry Thomas Wood, Mo.; Charles Wykoff, Ill.

DENTAL DEPARTMENT UNIVERSITY OF OMAHA, THURSDAY EVENING, MAY 3, AT THE ILER GRAND, OMAHA.

GRADUATING CLASS.—J. Burt Bullen; Boydsville, Arkansas; Mary Ida Gallagher, Auburn, Nebraska; George E. Hartman, Randolph, Nebraska; Julius M. Jessen, Hooper, Nebraska; Felton L. Landon, Silver City, Iowa; Claud O. Smith, Reynolds, North Dakota; Harold Thomsen, Omaha, Nebraska; George W. Todd, Plattsmouth, Nebraska; William T. Uhl, Shenandoah, Iowa; Milburn C. Whitaker, Omaha, Nebraska.

OHIO MEDICAL UNIVERSITY.

Commencement exercises of the Dental Department of the Ohio Medical University, Columbus, Ohio, were held at the Great Southern Opera House, on Tuesday evening, April 24, 1900.

The degree of "Doctor of Dental Surgery" was conferred upon a class of forty-two as follows:

Deverne Abbott, Willis Alexander Simington Barber, Leroy Clarence Benedict, Lindsey Rufus Brookins, Harvey Van Doren Cottrell, Elias Odell Dennis, Mina Burke Dunlap, William Henry Dillon, John Cline Early, Joseph Calvin Evans, Stanley W. Eakin, Clyde Shannon Fergus, Clare Lowry Frame, William Harris Gobey, George Lewis Gordon, J. Walter Hartshorn, George S. Hershey, Albert Lawrence Hagerty, William James Keyes, Sophia Helena Kimball, Ora Beyl Kneisley, Charles Dixon Krim, James Otis Lathem, Perlie Harrison Leffel, Benjamin Franklin McGinnis, George E. Morden, William Henry Mundwiler, Jr., Wilbur Harris Munger, Lee Hart Decourcy O'Grady, William Franklin Pasters, Lester Winfield Paullin, William Edward Rickel, Robert Umstot Rose, Charles Augustus Ruhlen, William Eugene Shadrach, Clark Gans Smith, Charles Kinney Teter, Elmer Divver Wilson, William Gunn Wirt, George Cornelius Woods, Norvill Finley Young, Emanuel Reinholdt Zimmer. Total matriculates for the session, 183.

CHICAGO COLLEGE OF DENTAL SURGERY (DENTAL DEPARTMENT OF LAKE FOREST UNIVERSITY), CENTRAL MUSIC HALL, THURSDAY, MAY 3, 1900.

GRADUATING CLASS.—Lewis Edgar Alkire, Andrew Joseph Ardner, Louis Earl Arnold, Wilbur Orcutt Aten, Charles Grant Bacon, Magnus Leonard Bast, John Bast, Jr., Orrin Leroy Beeson, Charles Lester Belscamper, Benjamin Blatchford, John Albert Bullard, Edwin Charles Bock, Earl Davis Boyd, Ernest Edward Braley, Joseph E. Brager, Nickell Flint Brown, Joseph Thomas Buckingham, Joel Wallace Bingham, Jr., James Hudson Benedict, John Edgar Bowyer, Kenneth Charles Campbell, Clyde Cecil Carrick, John Boyd Chappell, Gustavus Alonzo Clark, Lewis Clark Coe, Francis Bradford Collins, Edwin Henry Crawford, Clyde Clippinger Crouch, Joseph Patrick Crowe, Edwin James Campbell, Charles William Davis, Calvin Ashford Dennis, Thomas Patrick Donelan, Emil Charles Dieckhoff, John Vincent Ducey, William Owen Dicus, Edmund Grant Dundass, Bryant Henry Everest, Guy Cronice Fraker, Roy Alonzo Funk, William George Fortune, Hugh Galbraith, Thomas Ewing Gaston, Garrett James Gerretson, James Clark Gibson, William James Gillies Samuel Wolford Gilson, Franklin Jesse Gostelow, William Robert Gostelow, Norman Clifford Grove, George Nimes Grove, Nicholas Aitken Guthrie, Henry Andrew Grammer, William Arthur Goslee, Frank Albert Gore, Eugene Delmont Hatch, Harold Joseph Hansen, John Jay Hammond, Edwin Thomas Hamilton, Ph. G., Emmet Corson Hallock, Frank H. Hillemeyer, Henry Hoesly, Ph. G., Herman Hale Hoffman, William Henry Hersh, Frank Alfred Hoyt, Fred Henry Helt, John W. Hodson, Henry Louis Jamieson, John Andrew Janett, Henry George Johnson, Adolph Richard Juengling, Alfred Irie Kutch, Horton Fellows Kimball, Samuel Williams Kuster, Ernest Everett Kerr, John Burton Kibler, William Harvey Land, Edward Patterson Lawrance, Daniel Patrick Mahony, Joseph Franklin Martin, Robert Ernest MacBoyle, Harry Adney McCallister, Richard David McEvoy, John Niesbit McLeish, William Francis Meagher, Thomas Jefferson Metcalf, Thomas Mailen Mills, Walter Britt Murphy, Charles Bodington McCandless, Marion Lafayette Myers, Oscar Henry Mayer, Harry Edward Nickson, Helge Norman, Charles Chalmers Norris, Ira Pickett Norton, Harry Luman Olcott, Lewis George Olmsted, Jewett Claire Parker, Frank DuBois Parker, Arnold Arthur Peterson, Harry Bowman Pinney, Olin Southard Proctor, George Walter Reese, Frank Martin Richardson, Hugo Charles Rietz, Perry Lawrence Rigg, Ph. G., Henry Thomas Rink, Sidney Willis Ritchie, Yanno Joseph Roth, Harry William Ruge, John Schleiter, Jr., Charles Dudley Schloesser, Otto Carl Schmedeman, Aloysius Francis Schultz, Samuel Joseph Scott, Albert Clayton Senneff, Lawrence Roland Sevier, William Jay Sheehy, Alexander Schutt, Chas. Henry Shurtleff, Detlef Sievers, George Wesley Slingluff, Charles George Smith, Charles M. Snyder, Herman Sturtz, Bruce Saulter, Edward Ambrose Smith, B. A., George Schneider, Joseph Johnson Tipler, Dwight Lyman Thompson, Samuel Downs Towle, Daniel Davis Van DeGrift, George Wyatt Van Verst, Arend Ludolf Johan Conrad Van Hasselt, Mark Elliott Vance, Eugene Adelbert Wayland, Walter Jay Weatherwax, Adelbert Alonzo Welch, John R. Whiffen, George Robert Eugene Williams, Alvin I. Williams, Ph. G., Oliver Leroy Williamson, Jerome Edward Willman, Charles II Nicholas Wolavka, Theodore Charles Wyneken, Harry Edwin Walsh, Robert James Basil Yule.

NORTHWESTERN UNIVERSITY DENTAL SCHOOL, CENTRAL MUSIC HALL, CHICAGO, WEDNESDAY AFTERNOON, MAY 2, 1900.

GRADUATING CLASS.—Charles Franklin Ackers, Theodore Ahlenfeld, Thomas Edward Alderson, Alexander George Anderson, George Jay Andrews, Oakley Moses Barker, Robert Wilfred Beck, Ottmar Albert Becker, Alfred Millen Bell, Arthur Davenport Black, Lee Edison Blane, Frank Bloom, John Edwin Bloomingdale, Borris Maurice Borovik, Willis Harrison Bower, William Frederick Brandt, Archibald Franklin Bronson, James Howard Brooks, May

Lorena Brooks, Boyd Crandall Brown, George Edward Brown, Walter Pilling Butler, Ralph M. Cannon, Edward B. Carney, Rolland Theron Case, Miles Bennett Chesebro, Henry Lee Chilson, Adelbert David Clark, Winfred Ross Collie, Charles Henry Converse, Frank Dennis Cooley, Marshall Sanford Cornish, Daniel Costello, Walter George Courtney, Alva Sumner Craver, William Bennett Crooks, Bert Charles Cushway, Arthur Lucas Cutter, Andrew Delos Darling, William Edward Davidson, Lewis R. Dessaint, Alfred John Dix, Rupert C. Drew, Frederick Addison Dryden, Fritz Henry Dueser, Bernard Alfred Duffy, Moses Eisenstaedt, Frederick Darling Fisk, Lawson Holland Flanagan, George James Formanack, Harris Joseph Frank, George Walter Free. Albert Julius Frieseke, Walter Orval Furman, Silas Philo Gainforth, Charles Henry Gietzen, Clayton Omer Gillette, Francis Joseph Goldthorp, Lewis Jay Goodson, William Emory Green, Albert Parker Grunn, Gail Washburn Hamilton, Charles Richard Hammond, Catherine Harriet Harlan, Thomas Stephen Harlan, Mary Georgia Hastings, Madeline Matilda Helmer, Frank Paul Henning, Hugo Herz, John Hirtzel, Mary Anna Hirsekorn, George Arnold Hopf, Robert Selwyn Hollingsworth, Wm. Gravard Hollingsworth, William Thomas Humphrey, Frederick Miles Hunt, Percy Benjamin DeWitt Idler, Frank Corden Jarvis, David Arthur Johnson, Oscar Theodore Johnson, Waldo Paschal Johnson, John Clarence Jones, William Albert Kaake, William Frederick Kratz, Robert Paul Keith, Murray William Kirkwood, Frank George Kotler, Gertrude Eleanor Lamberson, Henry Charles Larson, Franklin Ellsworth Lemmon, Richard Clayton Liggitt, John Ulrich Leutscher, Jarosh V. Mashek, Sidney Gilmore McCallin, Floyd Mathew McCluskey, Peter George McDermott, Alexander Rae Macdonald, Elizabeth Jennie McDonnell, Gregor McGregor, Robert Levi McIntosh, Earl Merritt, Frederick Julius Mess, Frank Edward Mielke, Oscar Hulburd Miller, Houston French Methven, George Snow Moffatt, Norman Henry Moore, Alice Morton, Orla D. Morton, Charles Mullen, Royal Bernard Munn, John Brawley Neill, Julius C. Osher, George Alexander Parks, William Smith Park, John Free Patten, Ira Abe Payne, Charles Albert Peak, Henry Clay Pence, Albert Dodge Persons, Adolph Peterson, Elmer Christian Peterson, Edward J. Peterson, Octave William Peterson, Cory Allen Philpot, Chase Hale Pierce, John Frederick Pitts, George Alfred Pollard, Lemuel Fiske Pooler, Albert Byron Potter, Edgar Chauncey Potter, Edward Foster Powell, Homer Lewis Prettyman, Ross Allen Pritchett, John George Probst, Bennett Frank Ransdell, Charles Herbert Read, William Lincoln Reedy, Joseph Earnest Rehnstrom, Mary Gluesing Robeson, Rome Holmes Robinson, Albert Brown Rood, Julius Ronna, George Byron Rusco, Margaret Louisa Safford, John Nicholas Sandbloom, Jollie Noble Saxe, David C. Schiff, Maurice Solomon Schoenbrod, Agnes Seiler, Rudolph Serwe, Charles Parsons Shewey, James Slaven, Claude Everett Smalley, Otto Bert Smith, Walter Clarence Smith, McGuire Snyder, Edward William Spessard, George Lyman Stebbins, Arthur Goode Stephens, Bert Louis Stevens, Elmer Duncan Taylor, Mahlon Henry Teeter, Henry Raymond Thill, John Cross Thompson, Edna Maude Thompson, Frank B. Tims, Frank Byron Tomlin, Frank Dayton True, William Edgar Wagoner, Charles Heavysege Walsh, Burnet Dewey Warner, Frank Bradford Weaver, John Ellis Welsh, Jesse Alden West, Edward Wallace Whitman, J. Russell Wickey, Charles William Willson, William Harlow Wilson, William C. Wolf, Richard Wolfrum, Willard Joseph Worsley.

DOMESTIC CORRESPONDENCE.

Letter from Dr. G. A. Mills.

April 23, 1900.

To the Editor of the Review:

We have just read Dr. S. G. Perry's letter in the April number of your journal. Of course Dr. Perry is a good fellow, yet that does not prove that "Bugs" are the origin of *P. A.*, also "Riggs' Disease," etc., etc. Dr. J. Leon Williams has proven an axiomatic scientific fact that will stand through all assumptions of loosely made statements. *Predisposition* and *environments* take precedence of all other statements, concerning *first cause.* Predisposition in some teeth stand against all causes that come by environments, be they ever so corruptive or destructive. Every practitioner of any length of time in practice knows this fact. Dr. Sanger lately sought to introduce a belief to a New York audience, that he had got on to the veritable "Bug," that Dr. Perry had so long believed in. Dr. Sanger will drop back to the same theory that he did regarding his "Revivification Theory of the Peridental Membrane," viz.; *oblivion.* His boldness to show the practice of implantation was not altogether uncommendable, proving that it can be but a temporary result. Good fellows should play no part in commendations of so-called scientific investigations even in book form, unless they have the backing of facts behind them.

As we are at it, it was with the same view that we criticised Dr. Talbot's book on "Interstitial Gingiritis."

If mankind had been evolved from a monkey then an investigation on that line would have been in order; "*Scotry.*" The predisposition and environments of human beings and monkeys or dogs are far removed from each other. Scientific investigators are not "monkeying" around so loosely as some things seem to indicate. Our English fellow, Goadby, is giving out some very interesting statements concerning this "Bug" business, that indicates a plethora of light approaching.

In closing, we will refer to a very interesting feature of Dr. Perry's letter, viz., the result of "implantation" in connection with "*P. A.*" We do know that to remove all teeth from the alveolus that all the features of this noted disorder, "*P. A.*," does disappear. So, as Dr. Perry says, a like result with individual teeth that are implanted.

No one has answered this query yet. It is just as true that certain phases of this disorder respond to the Riggs' method of treatment, intelligently performed. Dr. Riggs' answer for this was that he produced a simple surgical wound, cutting away *all* disordered territory behind the life line, and it resulted in a healthy reaction, producing a healing of the parts.

As a poet, Dr. Perry is a success, but we do not endorse his scientific deductions.

Yours cordially,

G. ALDEN MILLS.

33 EAST 62D ST., NEW YORK CITY.

P. S. We cannot recall the name of the writer, about '78, at a scientific gathering, I think in Elmira, N. Y.; he claimed that there were mineral alkaloid formed bodies which existed in the body, and that in health were benign, and that in unhealthy territory became toxic. His reasoning seemed so intelligent that we were mentally convinced this gave a blow to all first causes being connected with "bugs," and Dr. Williams' statement confirms it.

LETTER FROM NEW YORK.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—On April 10 the First District Dental Society of New York re-elected their entire list of officers to serve another year: Dr. W. C. Deane, President; Dr. J. W. Taylor, Vice President; Dr. B. C. Nash, Secretary; Dr. J. H. Meyer, Treasurer; Dr. J. Bond Littig, Librarian.

The Central Dental Society of New Jersey had Dr. R. H. M. Dawbarn for essayist at their April meeting, who read a paper on "Diseases of the Antrum." The subject was treated mainly from a surgical standpoint and was well rendered. Dr. Dawbarn's papers and talks before societies are clean cut and intelligible, which makes him a much sought-for man. Although a medical practitioner and occupying a position on the staff of the New York Polyclinic Hospital, he takes quite an interest in our dental societies by attending meetings occasionally.

In March Dr. Dawbarn cliniced upon the cadaver for the New

York Odontological Society, performing a number of operations such as dentists would be interested in. It was the most instructive clinic that has been given before any dental society in some time, and those who could not be present or were indifferent as to attending a clinic have much to regret.

At the April meeting of the Odontological Society, Dr. Ottolengui's (of New York City) subject for the evening was "Conclusive Evidence in Relation to Jumping the Bite," which was really an answer to Dr. Talbot's criticisms of Dr. Ottolengui's paper on the same subject presented a few months ago. Dr. Ottolengui's case was somewhat weak then, but last month he strengthened his position very much. Some recognized authorities on regulating should have been present that evening to discuss the subject more fully than it was.

In the afternoon of that day (April 17) there was given by the Odontological Society a clinic.

Dr. H. W. Gillett, of Newport, R. I., obtunded two cases of sensitive dentine, one by cocaine cataphoresis, the other by dehydration with warmed compressed air, in which he showed new apparatus for both processes.

Dr. Gillett deserves much praise for the preparations he made to present before the society his clinic properly. It necessitated the transporting from Newport of a most elaborate electrical outfit, which it would be unwise to attempt to describe, because of its completeness and his assistant. His patients were helpful and good. The operation by cataphoresis was upon one of those unusually dense teeth which consume much time. The operation was not perfectly successful. That upon the other patient by dehydration was perfectly so. Either principle is not universally applicable in all localities of the mouth.

Dr. M. L. Rhein, of New York, was also a clinician that afternoon, and surprised everybody by presenting something entirely new and in addition to his announced clinic, which was the use of the "pneumophore" in the treatment of pyorrhea alveolaris.

The new thing was the replacement of a diseased root of a molar tooth by an artificial substitute, in those cases of pyorrhea where the gum tissue and alveolus have ceased to perform their function properly and are endeavoring to exfoliate the tooth on account of the diseased and irritated root.

The doctor showed two cases in the mouths of patients for whom he had performed this operation.

It consists of amputating the diseased root, removing it, making a mold of same, then forming an exact counterpart of porcelain with a platinum post extending from the coronal end. The crown is prepared to receive the post. The manufactured root is implanted in the old socket and held in place by suitable filling material. One case shown has been in place five months and evidences excellent health about it; the other of about a month is equally healthy.

The "pneumophore" with which the doctor demonstrated is an instrument used by aurists for massaging the tympanum in cases of defective hearing. His application of it to dentistry was for the purpose of massaging the gum tissue about teeth affected with pyorrhea. The instrument consists of an electric motor with a small pump attachment which is capable of causing a sucking action, an ejectory action (both of an interrupted character as rapid as the blow from a mallet) or a combination of alternate suction and ejection of air.

The April meeting of the Institute of Stomatology, was held at the office of Dr. Geo. S. Allan, 51 West 37th Street.

Among other things spoken of in the "Incidents of Office Practice" was a very unique amalgam crown suggested by Dr. Henry Barnes, of Cleveland, Ohio. Having various models of crowns of natural teeth, he burnishes into these models quick-setting amalgam, leaving a hole through the crown; as a result he has a hollow amalgam crown—thick walls—which can be polished and finished out of the mouth. This can be adapted to a root to be crowned; when so adapted, a band of phosphor bronze is placed around the root, pins inserted in the root, and the crown set within the band. Then amalgam is forced in through the hole left in the crown (having amalgamated it before placing on the root) and well packed around the pins and into undercuts in the crown. When entirely set the band is removed and but very little finishing is required.

The paper of the evening was by Dr. J. B. Locherty, of New York City, on "Surgical Extraction of the Pulp." We are not able at this moment to recall the *exact* wording of the paper, but that was the idea. He advocated the use of cocaine and the immediate removal of the pulp as opposed to the use of arsenic with delay and possible ill results.

Drs. E. C. Briggs, of Boston, Thos. E. Weeks, of Minneapolis, Holly Smith, of Baltimore, and H. W. Gillette, of Newport, sent communications on the subject, Drs. Briggs and Gillette being emphatically in favor of the surgically painless removal of the pulp.

We are unable to recall at this moment definitely concerning Drs. Weeks and Smith.

The discussion was participated in by a large number of gentlemen, some taking one side of the subject and some the other. There evidently was no unanimity of opinion. One prominent practitioner was anxious to know how to introduce arsenic into a buccal cavity which extends under the gum without having it ooze out and cause sloughing. He said he had had much difficulty in such cases. Suggestions were given him, such as filling the cavity with oxyphosphate, leaving a small hole from the pulp and subsequently introducing the arsenic through this opening and sealing it. Others suggested the use of cocaine or cataphoresis to obtund sufficiently to get the arsenic into the pulp chamber--when it might be sealed in without much trouble.

Altogether it was quite an interesting meeting. One of your Western dentists, Dr. Peck, of Minneapolis, has been with us some weeks this winter, trying to sell us a "gold brick" in the way of a sure color for porcelain, etc. The editor of the *Items of Interest* in the last issue has covered the ground pretty thoroughly, we think, and we may be pardoned calling attention to that editorial, because of its fitness. It seems rather strange that such "good things" are not snapped up by our professional brethren at home instead of being brought such a distance to the "effete east" in hope of a market. A surprisingly strange thing is the fact that certain gentlemen who were loud-mouthed in their opposition to Dr. Peck's proposition before the First District Society, soon joined his "class" at so much "per."

The May meeting of the Institute of Stomatology was held at Dr. Louis Shaw's, 162 Remsen Street, Brooklyn. For some reason a great many members do not attend when meetings are held in Brooklyn. Whether they think it too far or are unwilling to venture among the "aborigines" of that borough is "one of the things no fellow can find out." Certain it is they do not go; as a result the attendance was very slim. Dr. J. Morgan

Howe, of New York City, spoke on the use of eugenol and oxide of zinc as suggested by Dr. S. Blair Luckie, of Chester, Pa.

In the discussion which followed "iodoformagen" was spoken of in favorable terms by Drs. A. H. Brockway and F. Milton Smith, though both admitted a want of knowledge about its true properties and wished to be enlightened.

Dr. Smith made some very pertinent remarks concerning our use of things concerning which we know little or nothing; others acknowledged having had to do so on occasion. It seems to us that there are times when this must be done, else we would never get at the "true inwardness" of things.

Dr. E. H. Raymond, of New York City, read a paper entitled "The Successful Dentist." There was not as much discussion upon the subject as might have been expected. It makes considerable difference what point of view one has. What constitutes success in one case does not in another. That which would be the proper course to pursue in one section of the country would be ill-advised in other sections. These and kindred suggestions were not brought out. During one portion of the meeting the question of good, bad, and indifferent amalgams came up as well as the use of certain nostrums, or their non-use. We were a little surprised at some things but hugely enjoyed the "conversazione," which the meeting became for a while.

We have to offer our apologies for the absence of a letter last month and the brevity of this one—call it "grip" if you will. At any rate between pressure of business and much physical depression we were *not* equal to it.

Yours truly, "THE BOROUGHS."

ADDRESS OF DR. G. NEWKIRK TO CHICAGO DENTAL SOCIETY.

LOS ANGELES, March, 20, 1900.

A LETTER TO THE CHICAGO DENTAL SOCIETY.

I am sure that you will pardon me if instead of saying, "Ladies and Gentlemen," or "Fellow Members," I shall say "My Friends of Chicago." And I am sure that you will excuse me further if in place of a formal "Address" on strictly professional matters, I take the liberty of writing a somewhat general, and largely a personal letter. It would not be easy perhaps for me just at present to do otherwise.

One who has not had the experience can hardly imagine what it means to break off abruptly the associations of a lifetime and make a complete change of relations and environment. Even the one who does it cannot realize it fully all at once. It breaks on him rather by degrees with the new and strange impressions that are made successively with the first passing weeks or months. We seldom stop to think how completely we fit into our everyday environment; we do it so automatically. Our neighbors know us and we know them, and we say a pleasant "good morning" as we pass. As we go to the train we are greeted with the smiling faces of children on their way to school. The groceryman, the druggist and the sub-monarch of anthracite coal, stand ready to fill our orders and "send around to the house" anything we want, knowing us perhaps just well enough, but not too well. On the cars we meet people we know—probably their names have been so repeatedly impressed upon us that we can readily say them off-hand—at any rate we know the people, who they are and what they are. There is friendliness, free from awkwardness and suspicion, and no fear of making a mistake in one's manner of conversation.

A familiar environment means being very much at ease, comparative freedom from friction, a comfortable sort of feeling.

But when one goes to live among strangers, he must be a most self-contained philosopher indeed if he can face the problem of a wholly new creation without any worry or nervousness. Still if he have a few friends of the right sort who make him acquainted and explain the conditions of his new situation, his troubles need not be serious.

For a period of nearly forty-five years my environment has been that of the prairies. As a boy I saw them in their almost unbroken wildness. I have seen Illinois grow—from poverty to wealth, from the childhood of a State to robust maturity. I saw deer going from one point of timber to another and heard the wolves howling in the night. Like a familiar panorama it all spreads out before me—the great open vastness, the waving grasses, the wild flowers that made the springtime glorious; the unobstructed view of the far away horizon, the visible lines of the on-coming storms—a panorama that can never be painted and can never be seen again. And there came a day when the roar of guns at Fort Sumter came up from the South and rolled across the prairie, and I, a boy of fourteen years, watched the gathering of the clans. The sounds of fife and drum were heard and many whom I knew went forth to save the Union. And I remember the following four years of anxiety and strain—and the Union was saved, but the half of all who went forth from our prairie neighborhood never returned.

In Rush Medical College from 1865 to 1868 there were many ex-soldiers. Nearly half the class, it seemed to me, had been in the army. As a rule they had acquired a taste for medicine or surgery through some experience in hospitals. They were a stalwart lot of fellows and I felt honored by association with them, as the youngest member of the class. I might name many of those soldier boys, and many of you certainly will remember the name of one, Dr. Charles T. Parkes.

As many of you know, I have been a constant advocate of the benefits of professional association. I believe in it most thoroughly. Since graduating in medicine I have been a member of five medical societies in the State, two of which I helped organize, and of five dental societies, three of which I helped organize. All of these are in a flourishing condition to-day, with the possible exception of one county medical society. With every one of them have been inwoven threads of friendship and fraternal interest.

Of the Illinois State Dental Society as I have known it for twenty years, for the men who have been its constant supporters and faithful adherents I hardly dare to speak lest I say too much in praise and appear extravagant. I believe it has been in its history as a whole, in its length of years and uninterrupted usefulness, and more than all in its brotherly spirit, the greatest of its kind in the world. I am happy to state to you that the Society's best friend and tower of strength, Dr. George H. Cushing—"our Uncle George"—is "still on deck" at Los Angeles, Superintendent of the Dental School of the Southern California University, and for one of his age, well, hale and cheerful, and if he were here he would most assuredly send his love and greeting to you all. Through Dr. Cushing, I am informed that another of our stanch and true friends, Dr. Swain, has renewed health and vigor and is happy in his new home at Seneca Falls, N. Y.

And now, what shall I say of this, the Chicago Dental

Society? I have been a member of it since 1883, seventeen years. When I joined the meetings were held, as I think they had been all along up to that time, in the S. S. White rooms, then on Madison Street, east of Wabash. This was by the courtesy of that prince among gentlemen, Mr. S. R. Bingham, whose friendship for the society was ever sincere and true.

Perhaps some one present with a genius for figures can tell us how many meeting places the society has had since then and where situated.

This society has not gone forward at the same steady gait that has marked the progress of the State Association. We have had our ups and downs. Sometimes we were so determined on having peace among ourselves that we were willing to fight for it; and, while no one was killed outright, there were many wounded. But I think we have all learned—at least we should have learned—that kindness, courtesy, mutual respect, and the determined suppression of all contrary qualities are essential to success in societies as well as in private life. For several years the spirit of our meetings has been highly commendable, and it seems to me that the condition of the society has never been more favorable for good work than it is now. As everybody knows, a great deal depends upon the attractiveness of the program; therefore, the committee on program should be appointed with great care and well in advance. I take the liberty of suggesting that at this meeting or the next, the question of a program for the next year might be considered in open meeting to the extent of receiving suggestions from different members as to matters they would like to have discussed. But these should be only suggestions to the committee, and no member should take offense if his suggestion is not carried out.

It is the business of the committee to make out the program, and when they have made their best effort to solve a not easy problem they should not be criticised unkindly.

All subjects cannot be made equally popular nor interesting, and the most loyal members are not those who attend meetings only when something of special interest to themselves is to be brought forward. Dr. Cushing has never kept away from a meeting simply because the program was weak or faulty. As a member of the society and a firm believer in its mission, he considered it his duty to be there, and that is the correct view. No one can tell beforehand the value of a discussion. Ofttimes an unexpected turn will develop keen interest in a very unpromising question.

We should attend meetings, not for the mere selfish purpose of getting something, but the rather to give, to add our mite to the general collection. Whenever we give we are sure to get as much in return, if not immediately, later.

In California I understand it is not easy to maintain a State society except by division into northern and southern sections. The state is more than a thousand miles long (by the sea-coast) and communication is something of a task even since a railroad has connected the North and South. Imagine Illinois so long that it reached from the Ohio River to Lake Superior, with the center at Elgin, and mountain ranges crossing at various points. It will serve to illustrate the situation here. So the old State society of California has become practically a northern society, and the southern society as a branch has become in reality independent. This is newly organized, I am told, and holds a yearly meeting at Los Angeles and San Diego.

The Los Angeles Alumni Dental Association is a young society here, much enjoyed by its members and doing a good work. Kind friends Drs. J. D. and Kate C. Moody, formerly of Illinois, and Drs. Ford, Allin, Herren, Howard, Atwater, Brown and Epperson, graduates of Chicago schools, are among its active members. The society seems to possess an earnest and fraternal spirit and stands as an evidence of progress and of better conditions in the future.

Not long since I was agreeably surprised by a visit from Dr. Pruyn, and more recently Dr. Brophy has been with us parts of several days. I wish he could stay longer with us and have that complete rest and recuperation which he needs. Perhaps at your next meeting he will be present and tell you something of his observations in California. You would find them interesting.

In conclusion, I would thank the society for its many kindnesses in the years past and especially for the courtesies extended to me as president during the year just closing. I also thank the vice president for so capably assuming my duties since January. May health and prosperity attend you, each and all. Should any of you find your way to this land remember that my "latch string hangs out."

GARRETT NEWKIRK.

LETTER FROM DR. GILLESPIE.

The following letter is so good and so much to the point, that we publish it, as throwing light on a dark subject :

FORT SMITH, ARK., May 3, 1900.

Dear Sir:—Have just received a copy of the May number of *The Dental Cosmos*, and read your criticism of Dr. Nash's Chinese puzzle under the title of "Chronic Alveolitis."

Was delighted to find some one who could read that work through and live to tell the tale. Your constitution must have been forged from Bessemer steel rather than from the ordinary grade of iron.

I ordered a copy of it and contemplated establishing an infirmary for the exclusive treatment of the once awe-inspiring "Pyorrhea Alveolaris," but now simple "Chronic Alveolitis."

I read ten pages and went out and took a drink in violation of my New Year's pledge. Read a few pages more and consulted my diploma from Vanderbilt University to see if I had really ever studied dentistry, then laid down and sought forgetfulness in slumber.

From a financial standpoint that book has been a bad investment for me. It cost three dollars and something itself; I have worn the back off a five-dollar dental dictionary looking for words I wot not of, and after reading fifty pages decided I had better take on Homer's Iliad in the original MS. for light reading.

I vividly recollect the shudder than ran through the freshmen class at Vanderbilt when Dr. Henry Morgan would spring "Hematogenic-Calcic Pericementitis" and other such terror-striking technicalities upon us, but those things are soothing as Mrs. Winslow's syrup compared to the product of Dr. Nash's wonderful inventive genius.

I had become almost hopelessly discouraged over ever finding out what he was trying to say, or what he meant when he said it; but since you have read it three times I am constrained to tackle it once more.

I shall not read it but once, though, then I shall put it carefully away with my Bible so it will not get abused.

Pardon this long communication from a rank stranger, but I wish to express my admiration of your powers of perseverance and endurance.

Most respectfully,

WM. C. GILLESPIE.

P. S.—Have decided not to establish an infirmary.

REVIEWS AND ABSTRACTS.

ENORMOUS HYPERTROPHY OF GUMS IN A FIFTEEN YEAR OLD GIRL. ZAHNARZT OTTO TORGER, DRESDEN.—[*Odontogolische Blatter, Feb., 1900.*

Under this heading the essayist describes an abnormal growth of gum tissue in the region of the upper incisors and bicuspids in a patient whose mother is suspected of having died of tuberculosis. Patient herself is anemic and of weak physique. "The growth at the time of the first examination is of such an extent that the crowns of the teeth are invisible and deeply imbedded in this mass of gum tissue, the lower teeth burying themselves into the palatal flaps whenever the mouth is being closed and causing frequent hemorrhages. The blood then oozes out from between the lips, hemming their outer margins and the corners of the mouth with coagula. The bleeding is especially profuse at night, and in the morning, chin, neck, breast and nightgown will be stained with crusts of coagulated blood. The blood also accumulates in the cavum nasale, forming thick lumps, which cause the patient to wake up frequently nights. This hypertrophic gum tissue never was painful. It is dark red in color, and resembles a ripe raspberry."

The patient had been under treatment of different physicians for the better part of two years. Scissors and caustics had been used at intervals to fight the progress of the growth, only to make matters worse. When, finally, the patient presented herself in the above described condition to the writer, he decided to use Paquelin's burner under local anesthesia (Scheich's method), which operation he managed to complete, but for the removal of the tissues in the interdental spaces. In the course of this operation his suspicion was verified, i. e., the disease did not appear to be but a superficial hypertrophy of the gums. "The growth originated in the periosteum of the maxillæ, and had eaten deep into the alveoli of all the teeth and deeply penetrated the maxillary bone over the right cuspid and first bicuspid." Curetting was made impossible in this operation on account of the pain connected with it. Although the operator had thought of the radical procedure of extracting all the teeth in the region affected, he could not make up his mind at this time to sacrifice so much in so young a person. He dismissed the patient in the hope of at least somewhat of a lasting benefit.

After three months patient returned in the old deplorable condition. Dread had kept the patient from showing up at certain intervals as had been requested. This time chloroform was decided upon. The thick and pulpous flaps of tissue were gotten rid of by Paquelin's burner. After the removal of the teeth the alveolar process was chiseled away and the surfaces curetted thoroughly. Six weeks after this second operation a small residuum was removed, after which the tissues healed up completely and definitely under careful use of the caustic pencil and proper washes.

A microscopic investigation of the removed tissue was made impossible, inasmuch as they were delivered to the expert in a condition which rendered them entirely unfit for this procedure.

H. F.

THE PRACTICE BUILDER. A TREATISE ON THE CONDUCT AND ENLARGEMENT OF DENTAL PRACTICE. BY CHAS. R. HAMBLY, D. D. S. Fifth edition, Cincinnati and New York. American Dental Publishing Co., 1897. Cloth, $5.

We have spent some time in looking through the 668 pages which make up this volume and consider the time devoted to it as almost wholly wasted. There are some good things in it, but much that is bad. It is not built on the lines of Cathell's "The Physician Himself," which is a delightful volume. There are ninety chapters devoted to such subjects as "How to Get Patronage," "Short Sixes," "Follies," "How to Get New Patrons," "Influence, and How to Get It," "Handling Patients," "Wine and Women," and many common topics about the office and the house. This is supposed to be a mentor for the young dentist or the one who has not succeeded very well. It is too bulky and too expensive and much of the advice is not calculated to do good. Still there are good things in the book, but we would not care to recommend it to a recent graduate.

MEMORANDA.

Dr. E. C. Kirk will sail July 14 for Paris.

Dr. H. A. Smith is going to Paris about July 5.

Dr. W. W. Walker will go to the Congress, sailing July 7.

Dr. P. H. Morrison, of St. Louis, paid a flying visit to Chicago in May.

Drs. A. H. Fuller, W. F. Lawrenz, F. F. Fletcher, Morrison and Fruth were at the State meeting in Springfield.

Dr. E. L. Holmes, for many years president of Rush Medical College, of Chicago, died recently, aged seventy-two.

Shortly to be published—" Facts, Fads and Fancies About Teeth," compiled by Henry Lovejoy Ambler, M. S., D. D. S., M. D.

Dr. M. J. Dunn, of San Francisco, Cal., has gone to the Mediterranean for a visit and will later attend the dental congress in Paris.

For painting those little breaks in the mucous membrane caused by the sharp edges of a plate, use compound tincture of iodine.

Dr. C. F. Noyes, of Chicago, died April 22. He was a graduate of the University of Michigan and had practiced in Chicago about eight years.

We believe the use of a natural lithia water in cases of pyorrhea alveolaris preferable to artificial water, from the observations in clinical use.

Drs. C. P. Hebert and Yant will give general post graduate courses in Prosthetic Dentistry in Montreal, Stockholm, Berlin, Vienna and Paris.

Dr. Alfred Burne, D. D. S., of Sydney, New South Wales, has been appointed a special lecturer in dental mechanics and metallurgy at the Australian College of Dentistry.

Nothing is better than to have a list of hotels and boarding houses for Paris. Here is another good one, Mme. Powers, 66 Avenue Danton (Champs Elysees). First-class.

In opening an abscess be sure and reach the collection of pus, then wash the cavity or sac with boro-glycerine water. To keep it open use ninety-five per cent carbolic acid.

Australia seems to be the dumping ground at present of the Independent Medical College of Chicago. A correspondent of ours wishes to know, you know, if such diplomas are recognized in Chicago, and we say, NO.

COLORADO STATE DENTAL ASSOCIATION.

The Colorado State Dental Association will meet at Boulder, Colo., June **12, 13 and 14, 1900.** Yours truly,

L. S. GILBERT, *Secy.*

TO THE EDITOR :—I think I have discovered a new metal for making dies for swaging plates. It is called *lumen metal.* It has a tensile strength of

30,000 pounds and compressive strength of 75,000 pounds and melts at about 1,000°. It works very much like Babbitt metal but is very much harder. It makes a nice, clear die and apparently does not shrink or expand. I will make a further report on it later on. B. D. WIKOFF.

WISCONSIN STATE DENTAL SOCIETY.

The thirtieth annual meeting of the Wisconsin State Dental Society will be held at La Crosse, Wisconsin, July 17, 18 and 19, 1900. A cordial invitation is extended to all members of the profession to be present.

W. H. MUELLER, *Secretary*,
21 W. Main St., Madison, Wis.

RECEPTION COMMITTEE APPOINTED BY THE MANAGEMENT OF THE INTERNATIONAL DENTAL CONGRESS AT PARIS.

The following named gentlemen constitute a reception committee for looking after the welfare of residents of the United States attending the Dental Congress: Dr. du Bouchet, President, 8 Boulevard des Capucines; Dr. Roussel, Secretary, 74 Boulevard, Haussman; Drs. Barrett, Bogue, Crane, Daboll, I. B. Davenport, W. Davenport, Fay, Gires, Hotz, Lie, Levett, Meng, Georges Ryan, Jean Ryan, J. H. Spaulding and Silva.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

At the annual meeting of the Central Dental Association the following officers were elected for the ensuing year: H. S. Sutphen, D. D. S., President. Newark; F. G. Gregory, D. D. S., Vice President, Newark; N. M. Chitterling, D. D. S., Secretary, Bloomfield; Chas. A. Meeker, D. D. S., Treasurer, Newark, Executive Committee: J. S. Vinson, D. D. S., Newark; F. L. Hindle, D. D. S., New Brunswick; C. W. Hoblitzell, D. D. S., Jersey City; J. W. Fisher, D. D. S., East Orange; P. G. Voegtlen, D. D. S., Madison.

NELSON M. CHITTERLING, *Secretary*.

AMERICAN DENTAL CLUB.

PARIS, April 26, 1900.

The American Dental Club of Paris desires to make known to all American dentists visiting Paris for the International Dental Congress that the members of the club place at their disposal some rooms which are in a central location, 40 rue des Mathurins, where mail can be sent, and where light refreshments can be obtained.

The club extend a cordial invitation to all their American confrères to make use of these rooms as a general headquarters from August 5 to August 15.

C. V. DUBOUCHET, *President*,
8, Boulevard des Capucines.

GEO. A. ROUSSEL, *Secretary*.
74, Boulevard Haussmann, Paris.

NATIONAL DENTAL ASSOCIATION.

The date of meeting of this organization has been changed from June 26 to July 10, 1900, and the association will convene at Old Point Comfort, Va. This is a very pleasant place in which to meet, and everything bids fair for a successful and profitable gathering. Application has been made for reduced fare on all the railroads, and the rates will be published in our next issue. We would especially urge upon the State societies that they elect their full quota of delegates, and choose who will attend the National meeting. All those having papers which they wish to bring before the association should communicate with the proper sections.

J. N. Crouse,
Chairman Executive Committee.

SECTION III. NATIONAL DENTAL ASSOCIATION, COMPRISING OPERATIVE DENTISTRY, MATERIA MEDICA, THERAPEUTICS AND CHEMISTRY.

It was decided to make clinics a feature of Section III. at the coming meeting at Old Point Comfort, July 10, 11, 12 and 13, 1900.

To this end we desire to make an exhibit of models, charts, etc., illustrating new methods; also new appliances and instruments—*not to be offered for sale.*

Facilities will be offered for both chair and table clinics.

We want such operations as porcelain or gold inlays fully shown in table clinics.

There will be a line of typical cavities prepared by representative operators, as follows:

Mesial cavity in upper central incisor which involves the incisal angle.

The same in the adjoining central which does not involve the incisal angle.

Disto-occlusal cavity in upper second bicuspid.

Mesio-occlusal cavity in adjoining first molar—step cavities.

Each pair of teeth to be mounted in their proper relation to each other in plaster base—the gum tissue to be represented by pink wax.

THE AMERICAN DOCTORATE IN GERMANY.

The following extract from a Schaffhausen (German) newspaper will show the impression produced in foreign countries by the selling of degrees by fraudulent colleges in America. It is unfortunately the case that the most of this infamous traffic is carried on in Chicago under cover of a law enacted long since for good purposes but under which it is possible to obtain charters for fraudulent colleges which are able to get the certification of our Secretary of State to their regular incorporation. Illinois politics have so far prevented the repeal of this disgraceful law.

"The German courts of justice have begun to proceed seriously against the constantly increasing cases of unfair competition.

The 'Reichsgericht' (Supreme Court) has recently confirmed a verdict declaring a dentist, or technologist of dentistry, guilty of unfair competition (illoyalty) because he used the title of 'Doctor.' He had received a diploma of D. D. S. from 'The German Medical College' in Chicago. This college is a private institution belonging to the Board of ———, permitted by the statutes the right of granting diplomas. There are, in every branch of science, many such institutions in America, and it is very easy to get the D. D. S. title for those who have plenty of money. They can get it even without any statement of sufficient scientific knowledge and without any special examination, based only upon the presentation of a paper and the payment of a set rate of $500 to $1,000. This is the second case within two months in which the German courts of justice have declared such an American 'Doctor' guilty of unfair competition."

RECENT PATENTS RELATING TO DENTISTRY.

645,413. Dental Separator, Edward Wishart, Waterford, assignor to J. W. Ivory, Philadelphia, Pa.

645,345. Dental Broach, Luther A. Young, St. Louis, Mo.

645,608. Dental Plugger, Charles Schake, Jr., Davenport, Iowa.

646,603. Artificial Tooth, Herman R. Nehrbass, Hartford, Wis.

646,764. Artificial Tooth, Thomas Steele, Red Bank, N. J.

646,629. Device for Regulating Teeth, Wm. P. Sugatt, Boston, Mass.

647,400. Artificial Denture, Arthur T. Glew, Germantown, Ohio.

647,010. Dental Plugger, Frank L. Marshall, Boston, Mass.

32,478. Design, Artificial Incisor Tooth, Arthur T. Glew, Germantown, Ohio.

Copies of above patents may be obtained for ten cents each by addressing John A Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

At the last meeting of the National Dental Association, it was decided by Section III. to make the work of this section a feature of the meeting. To this end it has been arranged to hold the meetings of this section at such times as will not interfere with the general sessions. *All papers* upon the subjects embraced in this section will be read in these meetings excepting two or three which, from their general interest, have been selected by the committee for presentation to the general body.

A suitable room will be provided and the program for each meeting duly announced. Some good papers are promised.

It was further decided to hold clinics. These will comprise operations upon patients, and demonstrations upon casts, methods, etc. It is desired that everyone who has anything new, original and helpful, will bring or send his appliances, models and illustrations. While new appliances may be shown subject to the provisions of the constitution, nothing can be offered for sale. Suitable provisions will be made for the carrying out of these clinics.

Let everyone interested in this section who has anything to offer communicate at once with

THOS. E. WEEKS, *Chairman*,
Dayton Building, Minneapolis, Minn.
JNO. J. HART, *Secretary*,
118 West Fifty-fifth St., N. Y.
or THOS. P. HINMAN, *Chairman Clinic Com.*,
Atlanta, Ga.

ILLINOIS STATE DENTAL SOCIETY.

Officers 1900-1901 : President, J. G. Reid, Chicago; Vice President, M. L. Hanaford, Rockford; Secretary, A. H. Peck, Chicago; Treasurer, C. N. Johnson, Chicago; Librarian, J. T. Cummins, Metropolis.

Executive Council 1900-1901 : J. G. Reid, Chicago; A. H. Peck, Chicago; C. N. Johnson, Chicago.

Terms expire 1901 : J. Campbell, Bloomington; E. K. Blair, Waverly; S. A. Campbell, Mattoon.

Terms expire 1902 : T. W. Pritchett, Whitehall; W. A. Johnston, Peoria; Don M. Gallie, Chicago.

Terms expire 1903 : C. B. Sawyer, Jacksonville ; M. L. Hanaford, Rockford; C. B. Rohland, Alton.

Standing Committees. Executive Committees : C. R. Taylor, Streator, Ill.

Committee on Publication : A. H. Peck, Chairman, Chicago; Edmund Noyes, Chicago; C. N. Johnson, Chicago.

Board of Examiners : E. M. Robbins (Term expires 1901), Carthage; C. C. Corbett (Term expires 1902), Edwardville; S. F. Duncan (Term expires 1903), Joliet.

Committee on Dental Science and Literature : A. W. Harlan, Chicago.

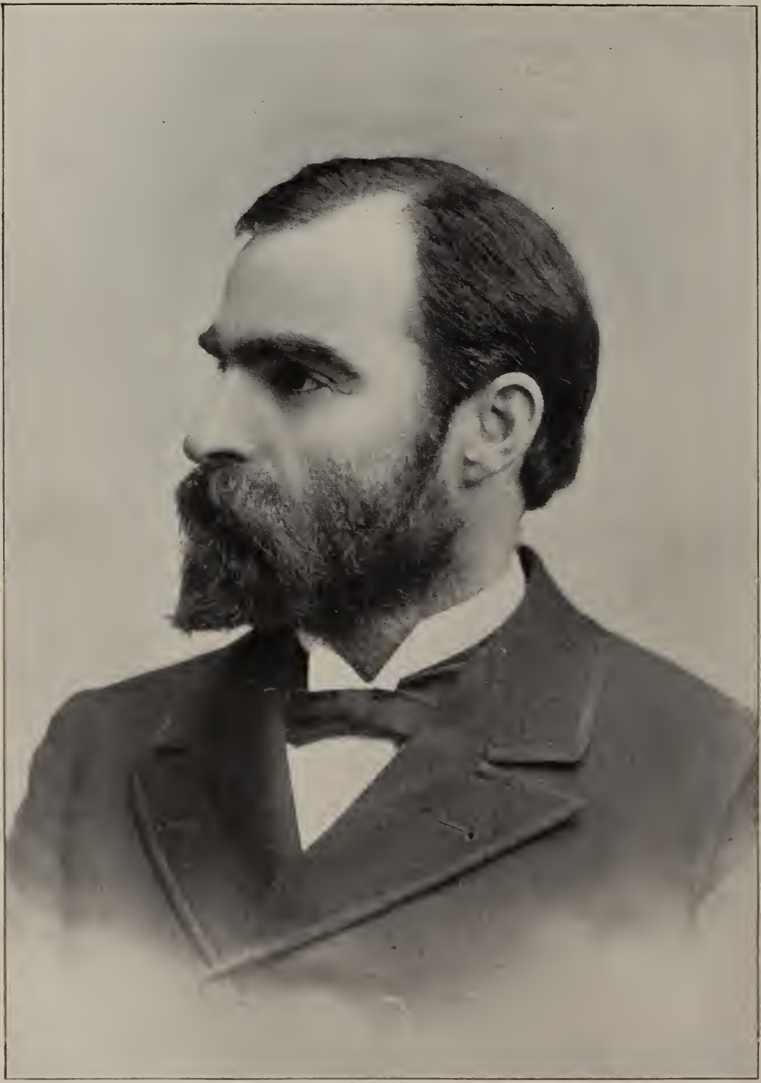
Committee on Dental Art and Invention : H. J. Goslee, Chicago.

Committee on Infraction of Code of Ethics : C. B. Sawyer, Jacksonville; J. D. Nicol, Peoria; Edmond Noyes, Chicago.

Clinics : J. E. Hinkins, Supervisor, Chicago.

Local Committee of Arrangements : C. A. Kitchen, M. R. Harned, J. J. Reed, Rockford, Ill.

Next meeting will be held at Rockford, Ill., second Tuesday in May, 1901.



THEODORE MENGES, B. S., A. M., D. D. S.

THE

DENTAL REVIEW.

VOL. XIV. CHICAGO, JUNE 15, 1900. No. 6

ORIGINAL COMMUNICATIONS.

A DENTAL EXAMINATION SUFFICIENT TO ENTER THE ARMY AND NAVY OF THE UNITED STATES.

BY W. H. FOX, D. D. S., CHICAGO, ILL.

While the majority of all men examined for entrance into the military or naval branch of the country's service are of the sturdy type which has had little knowledge of ill health, it is fair to presume that the dental organs are of good quality and would readily pass an examination by any dental surgeon. However, it is among such people that an observer will find many teeth missing because the person has been unable or unwilling to have lost tissue replaced by artificial work, or perhaps has been injudiciously advised by some irresponsible dentist. Undoubtedly some who are anxious for military and naval honors have been passed with little attention paid to dental necessities, and have found such laxity of examination militated against their peace and comfort in after years.

Another class of unfortunates is those who after serving their country faithfully for many years find themselves incapacitated by conditions of diminished dental function to continue satisfactorily at their post.

When the government at Washington takes up the subject of dental provision for the army and navy, there will be sufficient and competent dental surgeons appointed to pass satisfactorily upon applications, and to care for those who fall by the wayside as years of service progress.

If one examines the occlusal surface of an incisor or cuspid which has been subjected much to wear it is plainly evident that the lingual surface if it be an upper tooth, or the labial surface if it be a lower tooth, is worn into a smooth facet, a definitely outlined polygonal figure which bears a definite ratio at all times to original surfaces. In the bicuspids and molars, wear has caused facets to appear upon surfaces of tubercles. A city practice would give an observer the idea that the soft food, carefully housed citizen, is carried safely along with comfortable surroundings and the wear to his teeth would be gradual and slow, so that forty years may elapse before all the teeth of the mouth would show faceted surfaces. At other places or under other conditions where energizing power is under continual stress, the wear of the body requiring continual replacement and the teeth doing their share in the comminution of food, progression is more rapid and an earlier period of nearly ten years is sufficient to bring about the commencement of union of multiple facets in the same tooth.

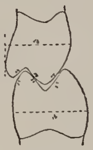


FIG. 1.

Showing that the area of trituration and the diameter of bicuspid crowns are equal in unworn teeth.

When a molar or bicuspid tooth is ground horizontally so as to show the greatest horizontal area, that is, where possible to include in the same surface the greatest measurements of the teeth mesio-distally and bucco-lingually, there will be present an occluding surface similar to the teeth of many elderly men; this surface may be designated as m.-d. x b.-l. area of efficiency. The anterior teeth follow the same rule; the work of incision is continued by the cutting edge passing over the inner aspect of the upper teeth, faceting a surface from three to seven mm., the average being somewhat less than the bucco-lingual diameter.

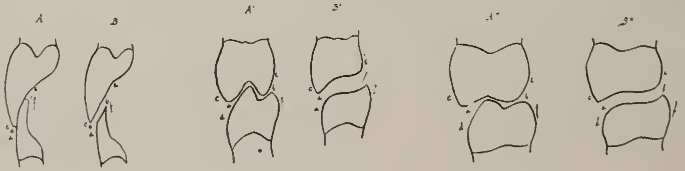


FIG. 2.

According to H. Block, the movements in the comminution of food are three, viz.:

1. To drop the jaw downward and outward to one side.
2. To bring it upward and outward on the side in the antagonizing position, to get the largest and most extensive surface available for the exertion of the preliminary pressure.
3. To pull the jaw laterally back into the occluding position for the exertion of a still closer and higher though less extensive final pressure.

Thus it is clear that the incursions of the jaw produce a flattened surface on the anterior teeth, but a wave line upon the bicuspids, the lowest point of the wave line being the point of greatest jaw extension.

Let the actual contact area in Fig. 2 as made during the complete incursion of the jaw be represented by a-b. This is the highest degree of functional activity, and is designated the Area of Trituration. Concomitant with the exercise of function is developed an area of surface which does not triturate so finely as a-b, but possesses a crushing force materially assisting the Area of Trituration; this is a secondary area, and may be described as the Area of Comminution, c-a and e-b in the upper jaw and a-d and b-f in the lower jaw, an important factor in the determination of value of malposed teeth. The condition of the bicuspids and molars (Figs. 4 and 5) now presents:

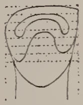


FIG. 3.

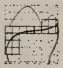


FIG. 4.

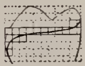


FIG. 5.

Area of $T +$ area of $C >$ m.-d. × b.-l., and in the anterior teeth (Fig. 3):

Area of $T +$ area of $C <$ m.-d. × b.-l.

The average of all teeth taken collectively would be:

Area of $T +$ area of $C >$ m.-d. × b.-l.

Hence, as a basis for comparison the use of m.-d. × b.-l. would be a safe unit.

Referring to Dr. Black's tables, we find the measurements in mm. of the mesio-distal and labio-buccal diameters upon which we can construct values of areas.

UPPER TEETH.

	Mesio-dist.	Lab.-buc.	Area of Trituration in sq. mm.		%
Central	9.0	7.0	63.00		.05
Lateral	6.4	6.0	38.40		.03
Cuspid	7.6	8.0	60.80		.05
				162.20	
First Bicuspid	7.2	9.1	65.52		.05
Second Bicuspid	6.8	8.8	59.84		.05
				125.36	
First Molar	10.7	11.8	126.26		.10
Second Molar	9.2	11.5	105.80		.09
Third Molar	8.6	10.6	91.16		.08
				323.22	
			610.78	610.78	

LOWER TEETH.

	Mesio-dist.	Lab.-buc.	Area of Trituration in sq. mm.		%
Central	5.4	6.0	32.40		.03
Lateral,	5.9	6.4	37.76		.03
Cuspid	6.9	7.9	54.51		.05
				124.67	
First Bicuspid	6.9	7.7	53.13		.05
Second Bicuspid	7.1	8.0	56.80		.05
				109.93	
First Molar	11.2	10.3	115.36		.10
Second Molar	10.7	10.1	108.07		.10
Third Molar	10.7	9.8	104.86		.09
				328.29	
			562.89	562.89	1.00

The value of any tooth as a power for usefulness depends upon the presence of its antagonists in opposite jaw, or in other words, without proper occlusion, no tooth performs its function of trituration and comminution at time of the insalivation of food. The normal occlusion permits the upper teeth to extend over or beyond the lower teeth; under this condition only a lateral movement of the lower jaw can bring that part to perform its function, thus bringing the surfaces closely into contact. Hence it will readily be noticed that only one side can be used at one time for grinding purposes. More people use one side for the grinding of food continuously than use both sides alternatingly, even in sound teeth. When the reserved side possesses carious teeth, tender gums or other pathological conditions or perhaps a crown or bridge work, which has caused the patient some financial effort to obtain, we have favoritism.

Favoritism of one side stamps with conclusive testimony, that barring the esthetic value of the other half of bilateral man the one side of the jaws can and does perform all the duties of food grinding necessary to man's existence. We can, therefore, reduce the total area of the upper jaw right side 610.78 sq. mm. + left side 610.78 sq. mm. to one side only, and the lower jaw to one-half of both jaws or 562.89, the total of one side being 1173.67 sq. mm. Only two teeth could be spared from this area without detracting from or influencing the arrrangement of the teeth; these are the upper third molar and lower central incisor, the only teeth in the mouth which occlude with only one opposite tooth and do not depend upon full amount of approximation for position. The loss of these teeth would bring the total area necessary to the successful trituration and comminution of food for a human being to about 1,000 square millimeters. Below this limitation we do not feel justified in going without drawing upon other organs of the body to do the work assigned to the teeth.

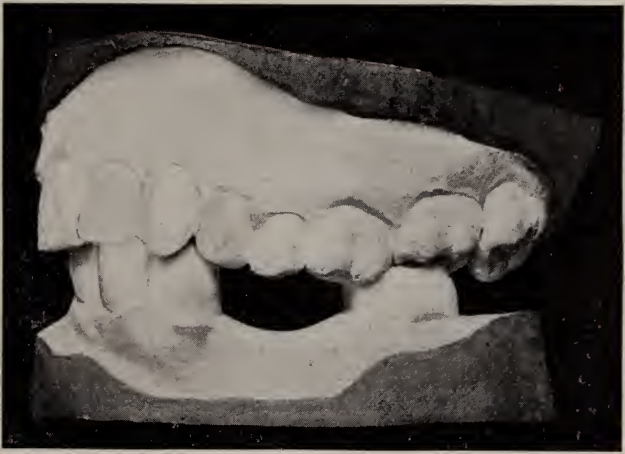


FIG. 6.

If the dental organs were square and the occlusion of one jaw against the other vertical without horizontal movement, permitting the opposite flattened surfaces to come into natural apposition, then the suggestions and measurements as set forth herein would approach a mathematical nicety; but without such conditions and treating of the more gracefully outlined and attractive organs with which nature has endowed mankind, the ideas suggest themselves tentatively as a working hypothesis, the result being valuable as an intelligent mode of comparison and the compilation of statistics.

For illustration take a model, Fig. 6, representing the left side of the mouth. A comparison with the table shows that the upper denture being complete the area of the surfaces of trituration and comminution will be 610.78, and the lower denture, consisting of lateral incisor, cuspid, first bicuspid and second molar would have an area of 253.47; total, 864.25; for both sides upon same basis 1728.50. But the true value of the dentures have been overestimated when certain teeth have been included which on account of no occlusion are valueless as to efficiency. No chain is stronger than its weakest link, and no denture is effective (barring esthetic values) beyond usefulness; therefore the idea of effectiveness in this case would be for the upper 310.99, and for the lower 253.47, and for both sides 1128.92, a result which would pass any applicant in a dental examination for the army or navy.

Again, the value of each tooth is a proportional part of the sum total of all units constituting effectiveness. In the last column of table No. 8 is arranged this percentage. Having ascertained that the area of usefulness represented by 610.78 mm. in the upper + 562.89 mm. in the lower jaw, making a total of 1173.67, admits of a reduction to 1000 sq. mm., to ascertain the limit of expression upon the scale of 100 the equation is expressed 1173.67 : 100 :: 100 : 85+.

This permits of a simple form of enumeration by which the teeth may be spoken of by numbers and in an examination of the mouth the effective teeth may be added as rapidly as distinguished by the most simple arithmetic. In Fig. 6 commencing with the superior central and giving credit for a half contact when only half is in apposition the upper dentine enumeration would be, 2½+3+5+2½+5+4½, the lower commencing with the lateral 3+5+5+10=45½ for one side or 91 for both sides, which being in excess of the limitation 85, would readily pass a dental examination.

Dr. Edward Bumgardner cites from the report of the Provost Marshal General in 1875, "The surgeon is directed to ascertain whether the drafted man or substitute has a sufficient number of teeth in good condition to masticate his food properly and to tear his cartridge quickly and with ease. The cartridge is torn with the incisor, canine or cuspid teeth." Section 20 of Paragraph 85 "Revised Regulations" was more explicit, stating that men should be rejected who had suffered "total loss of all the front teeth, the eye teeth and first molars, even if only of one jaw." A glance at the table will exhibit that an arrangement showing the loss of teeth as above mentioned would not only pass an examination but pass with high rating. The tearing and masticating qualities are practically unimpaired. It is only upon specialized demands where teeth cease to be teeth only and becomes accoutrements of war, cork pullers and perform other such functions that their value is increased. When so conditioned they should be classed as military teeth, a point more essential to the soldier than is to him their esthetic value. These conditions refer to the Civil War. With the progress in military warfare the necessity of biting a paper cartridge and the usefulness of military teeth passes away, let us hope forever, and the conditions remaining now to the soldiers is the same as to the civilian.

In general the effectiveness of teeth is largely a matter of distribution, and consequent solution of the continuity of the arch. A removal of one of the biscuspids and the molars which can decrease the numerical strength to one-half in reality depresses the usefulness to only one-third. And if the percentage of limitation be confined to one jaw with no teeth in apposition, the effectiveness would be nil, while if the percentage of limitation were concentrated in one locality and divided equally between upper and lower jaws the effectiveness of the equation would reach its highest point. An intelligent understanding of areas of effectiveness will dispel doubt and differentiate between apparent and real usefulness.

PRESIDENT'S ANNUAL ADDRESS.

BY R. N. LAWRANCE, D. D. S., LINCOLN, ILL.

Members of the Illinois State Dental Society:—We are again assembled at our annual reunion to greet each other as brethren. We are here to take note of our progress, to consult together for the welfare of our society, and to advise with each other for our common advantage, and indirectly, as far as may be, for the good of our whole profession. Our society does a work which can hardly be overestimated, and not the least part of it is the cultivation of a high professional spirit, and the fostering of a commendable pride of organization. Whatever profession a man may choose for his life work, by the very fact of its becoming the channel through which are directed the best efforts of his life, it is invested with a dignity, for him at least, which he should not forget. If this be remembered, it would seem that at all times he must strive to do all that will tend to elevate the profession of his choice, and see to it that as far as in his power lies its highest and best interests are promoted. It may be observed that whatever serves to sink selfish individuality in the good-fellowship of an association of kindred interests, and in that way to encourage thought for others, helps us to apprehend rightly the dignity and importance of our professional duties. Among these duties certainly may be included thought of and interest in the welfare of our fellow-practitioners. By the uniform pursuit of duty along this line, as well as in continual effort toward still greater individual perfection in our practice, we may come as near as possible to the attainment of the blessed ideal toward which we should strive, and certainly shall be lifted to a higher plane of intellectual and professional life. "No man liveth unto himself, and no man dieth unto himself." Were we not to meet together as we do each year, our mental horizon would be more contracted, local interests would stifle a healthy interest in the general good of the profession, and we should be deprived of the broadening influences and the inspiration which are all around us in our annual conference. When we separate again at the close of this annual meeting, I trust that we may carry away, each to his post of labor, the feeling of having received the benefit of that indefinable inspiration which may be gained from an assemblage of earnest, thoughtful men when engaged in the consideration of matters in which each one is deeply interested, and concerning which all share a common enthusiasm. I trust that we may feel that we are as members of one family and laboring for common interests, whether we occupy fields great or small, conspicuous or obscure. Channing says: "Men not only accumulate power by union, but gain warmth and earnestness. Union not only brings to a point forces which before existed and which were ineffectual through separation, but by the feeling and interest which it arouses it becomes a creative principle, calls forth new forces and gives the mind a consciousness of powers which would otherwise have been unknown." Such a union of men brought together by a common interest in the advancement of a dignified profession is to be found in our society. It is a privilege and an honor to be a member of the Illinois State Dental Society. All that I am, and all that I have accomplished in professional life, I owe to its influence and inspiration; and I doubt not that many of my fellow-members are prepared gladly to say as much.

We are led to these reflections by reading certain communications in some of our dental journals of recent date, such as "Commercialism and Disappointing Conventions;" "What is the Status of the Dental Profession?" "Dental Organizations in the United States, their Mistakes and Failures." The one last mentioned, from the pen of W. H. Trueman, fills me with indignation when I read such sentiments as the following: "When we reflect upon the very meager results of sixty years' organized effort to better the profession, we have been living too much in tents, having no settled home, no firm attachments; living in present selfish lives, having no reverence for the past, no care for the future, and but little repect for any but ourselves. What have the societies to offer for their time, their interest, and their money? What can a dental society offer now to a prospective member more than it could sixty years ago? Is membership in a dental society more valuable now, or more to be desired than it was then? With but few exceptions, the dental societies of to-day offer to their members nothing more than half a century ago." May we be thankful for the exceptions! Happily, not a word of such criticism will apply either to the Illinois State Dental Society, or to our district societies, or to those noble organizations in the city of Chicago, whose fame for true professional courtesy, and for the dissemination of knowledge among their brethren, come they from the East or West, North or South, hath spread far and wide.

While time-honored custom may justify the expectation that the president of this society shall make suggestions and outline future advancement on an occasion such as the present one, I think they are not necessary at this time. The genial and cultured gentleman who occupied the chair last year certainly presented in his able address sufficient to supply work for years to come. Instead, therefore, of making suggestions for the future, I may be pardoned if to-day I pause, ere we step across the threshold of a new century, and look back over the last quarter of the one drawing to a close, and pay tribute to the men who have made this society what it is, and take note of their successful endeavors to elevate our profession not only within our own boundaries, but also throughout the land. I recall with pleasure the day when I became a member of this society. The first man to take me by the hand and extend a hearty welcome was M. S. Dean. Blessed be his memory! He was a man imbued with the true spirit of professional life; he dignified and ennobled it; he not only held fast to the golden rule as applied to the field of professional ethics, but also practiced it. As I looked into the faces of Black, Brophy, Cushing, Crouse, Campbell, Cormany, David, Davis, Freeman, Gilmer, Gardiner, Harlan, Honsinger, Koch, Matteson, Noyes, Pruyn, Pritchett, Rohland, Stevens, Swain, Stone, Smith, Townsend, Waltz, and many others, I did not then realize what I have since come to understand, that here was a society democratic in its principles, harmonious in its actions, and devoted solely to the advancement and progress of its membership and of the profession at large. Year after year, during decades that have followed, it has convened in the interest of science and a noble profession, adding to its ranks, until to-day it stands peerless among all organizations of its kind. If any taint of commercialism or the sinister influence of disappointing conventions could be ascribed to our meetings, we should not have been honored so frequently by the welcome presence of such "stalwarts" as Taft and Templeton from the East, Ingersoll and Kulp and Wilson from the West, from the South a noble band, Eames, Morrison, Fuller, Bowman and Conrad, led by that royal prince of good fellows, McKellops. The instruction and knowledge imparted by the grand men of this society have been the means of straightening many a crooked path and smoothing many a rough place, proving that the possibilities for good of an harmonious, active body of men in a certain direction are almost incalculable. They have stimulated individual effort in various directions, and they have aroused in the minds of hundreds of practitioners an ambition to excel which has led to the exercise of greater care and faithfulness in their operations, and consequently to an increased degree of skill, a higher appreciation of the possibilities of our profession, and a larger measure of enthusiasm in its practice.

Brought into life thirty-six years ago, cherished and carefully guided by unselfish, devoted minds, and now endowed with full measure of strength and purpose, after having mastered many difficulties that lay in the way of our profession, we are now as a society in the full vigor of our maturity. The influence of this society in the advancement of the practice of dentistry and in the elevation of professional standards has undeniably placed us upon a higher plane of scientific thought and research, and has enabled us to take a correspondingly higher place in the estimation of the public and of the scientific world. It has been the prime mover in securing legislative enactments regulating the practice of dentistry. While our laws in that direction should be more stringent and more strictly enforced, nevertheless they have served to give an impetus to dental education, and have induced students to avail themselves of the advantages of the dental colleges as being absolutely necessary, without which there can be no well-rounded education in the profession.

We can point with pride to those in our ranks who have gone beyond the lines of ordinary routine practice, and have acquired national or worldwide reputations. The discoveries of that noble man, Black, are of inestimable value to all who will but avail themselves of the information to be derived from his labors. The broad foundations laid by that earnest and conscientious teacher, Cushing, will always be a source of inspiration to us. The plea for and the successful practice of conservative oral surgery have placed the names of Brophy, Gilmer and Marshall high upon the roll of fame. The labors of Harlan in the department of materia medica and therapeutics, and the grand success that crowned his work as Secretary-General of the World's Columbian Dental Congress, have made his name familiar the world over. The apostle of protection, our own immortal J. N. Crouse, has done more hard work for less adequate compensation than any other man in our ranks. We know, and every fair minded man knows, that the character of the officers of the Dental Protective Association is above reproach, and that they have the interests of the dental profession at heart. And I may remark in passing, that it is the duty of every dentist to join the association, and having done so, to act honorably and in the broadest sense be a man among men. In the department of irregularities and orthodontia we stand amazed at the perfection of methods presented by that artist, Case. We possess a Peck, who liberally dispenses good things by the bushel, and his benefactions are not confined to the department of pathology, materia medica and therapeutics. In bacteriology, our Cook has shown that he is entitled to rank with the foremost investigators of the day. In ceramic art, we lead the world. This brings us amongst those who represent the younger membership of our society. Our roll of honor contains the names of Taggart, Goslee, Good, Nyman, Schwartz and others. In the department of histology, the labors of F. B. Noyes entitle him to the highest possible commendation, and the heartfelt gratitude of every earnest worker in the world. We bow the knee to our young men. Indeed, we have been renewing our youth at the fountain of inspiration springing from their new and glorious achievements, and we look to them to set the pace and carry the banner of our society to a noble future. As we gird ourselves for our part in a new century of progress, and stand animated by the influence of the record of past heroic effort, while reviewing to-day the chapter of achievements heretofore, let us hope that the first quarter of the twentieth century may be as glorious for us as a society as the last quarter of the nineteenth has been.

Before closing, I must voice what I believe to be the sentiment of every one present, and say that we certainly miss the dear familiar faces of Uncle George, and that noble Roman, Swain, and that accomplished gentleman, Newkirk. Yet we may feel that their thoughts are here even now, and that although absent, they are with us in spirit. Long may they be spared to adorn the ranks of a noble profession.

I have only to add that in looking back upon the work of our society in the past, and in making plans for carrying it forward to still greater usefulness in the future, let us not forget a grateful recognition of the service done by those who have gone from our ranks for all time, nor fail to pay tribute to them for that service. Peace to the ashes of those who are gone to join the silent majority. There is no end to the good they have done.

A STUDY OF DENTAL DEFORMITIES IN FINE ART AND SCULPTURE.*

By B. J. CIGRAND, B. S., M. S., D. D. S., CHICAGO, ILL.

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PART I.

Some seven years ago I became interested in the portrayal of the dental organs as represented in fine art portraits. No doubt all dental practitioners have observed that these elements of individuality are generally painted, in what appears to us, a careless and nonanatomical manner. In 1893 while Chicago enjoyed the blessings of a World's Exposition, including a most elaborate display of fine art, it was my pleasure to frequently visit the Art Hall and note the various paintings which delineated the dental organs. Statuary Hall also received my attention, and it was my pleasure to make extensive notes regarding the reproductions of the teeth, by brush and chisel. While framing these deductions into an article in 1894, I soon became convinced that a course in photography and fine art was necessary and I diligently set out to acquire a knowledge of the elementary factors of both.

Lectures and books in this field of study I eagerly sought and in some degree became interested in the practical side of the work, and it affords me great pleasure to respond to your committee on program in the form of a paper on fine art. The specimens which I present to you are all taken from high priced paintings and sculpture, and are considered the best on canvas and in stone. I fain would bring to your notice the innumerable caricatures of the teeth as found in cheap paintings and chromos which are so conspicuously displayed in show-windows as premium pictures; and of the teeth as represented on theater billboards, I shall neither waste my paper nor your valuable time, since these productions are the most abortive which greet the eye, and are a mockery to artistic portrayals. My paper relates to dental and oral portrayals as observed in fine art and sculpture.

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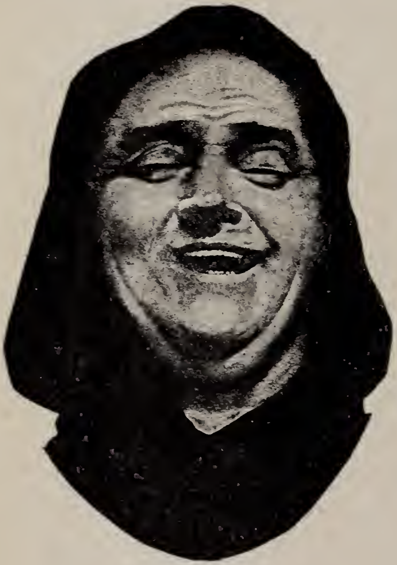
*Read before the Odontographic Society of Chicago.

The contrast in the oils and colored inks is considerably greater than I can possibly demonstrate in half-tone engravings and stereopticon views. The painful appearance of the teeth as represented in the original tinctured pictures is by far more contrasting and displayed. In the oil paintings especially, the dental organs seem to be the neglected features and hence stand out all the more noticeable. The critique which I would offer in general is that the teeth are seldom large enough, and usually indicate a supernumerary denture. The famous picture, "The Laughing Monk," painted by J. Benzoni, well illustrates this latter form of dental anomaly. This painting represents the head as having upwards of fifty teeth. Eng. No. 1.



Eng. 1.

"The Laughing Monk."
By J. Benzoni.

Eng. 2.

"The Professor is Out."
By Luigi Bechi.

This is but one form of dental deformity as found in fine art; other paintings represent the dental organs too large; abnormally positioned; without form; while the great majority of artists prefer to portray them by placing a white mark as indicative of the teeth. This latter manner of representing the teeth is clearly shown, in the painting entitled "The Professor is Out," by Luigi Bechi. Eng. No. 2. A few artists have portrayed the dental organs as sharp pointed instruments of mastication, approaching in appearance shark's teeth, or the teeth of a saw.

The famous likeness of Rembrandt as painted by himself is an excellent representation of this faulty manner of indicating the teeth. This picture he called "Rembrandt Laughing." Eng. No. 3. He evidently gave considerable attention to the mouth as the mood naturally refers to the mouth, and yet the dental organs escaped serious scrutiny. Not a few artists have fallen into the careless notion of showing the teeth in huge forms and entirely out of proportion to the general contour of the head. They stand out as tusks and certainly cast malformation upon the entire subject. The picture by Wm. Hole of "The Transformation Scene of Dr. Jekyll and Mr. Hyde" shows this form of dental abnormality. Eng. No. 4.

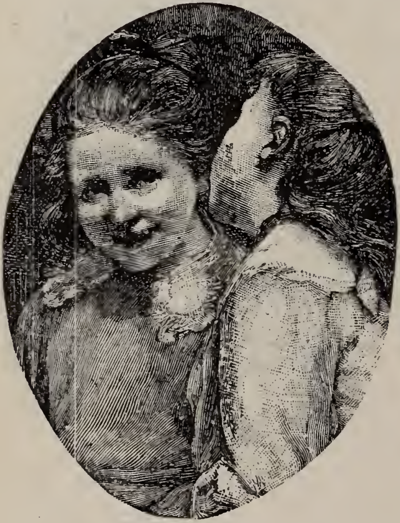
Eng. 3.

"Rembrandt Laughing."
By Rembrandt.

Eng. 4.

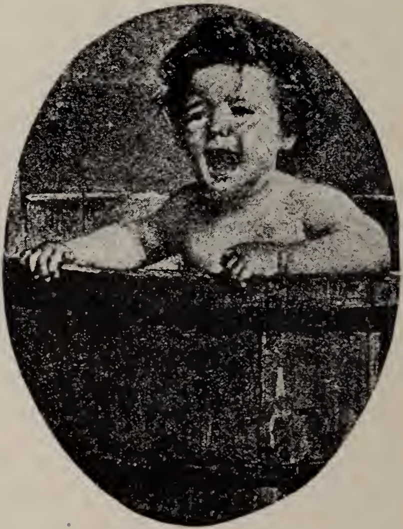
"Scene of Dr. Jekyll and Mr. Hyde."
By Wm. Hole.

There are also painters who make no attempt at illustrating the teeth, neither by a white outline or in diagram, but make a dark shadow in the oral cavity, as in Truphene's painting of the girl youth entitled "Staying After School." Eng. No. 5. Here the open mouth of a twelve-year-old girl fails to disclose the presence of teeth. There is some excuse for such a shadow line when the teeth have not yet erupted, as in paintings of infants in the mood of crying or laughing, as portrayed in the picture, "Deserted," by B. Vautier. Eng. No. 6. (By permission of the Photographic Society of Berlin.) And yet I am not certain but the age of the child would indicate at least four or more incisal teeth. If these had been extracted then the picture might be pronounced perfect. The toothless mouth is also found in the aged people and it is permissible to so represent it. The picture entitled "Grandpa Relating A Story," by H. Tecchi. Eng. No. 7. (By permission of the Photographic Society of Berlin.) The picture shows that the old gentleman had his teeth removed, but the portrayal of the gums is faulty and it makes him appear as though he had a quantity of food in his mouth. Artists in the past have given the teeth less consideration in the human family than in the animal kingdom. There are innumerable illustrations which accurately portray the teeth of dogs, horses and other do-



ENG. 5.

"Staying After School."
By Truphene.



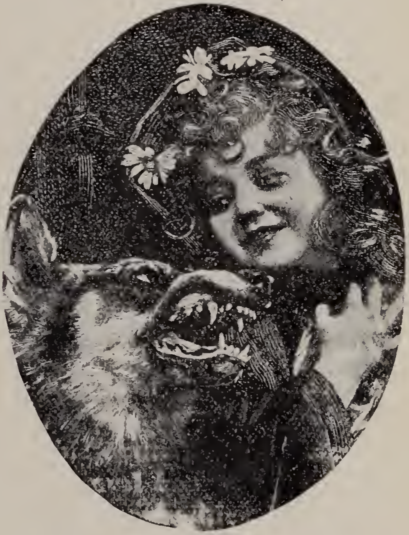
ENG. 6.

"Deserted."
By B. Vautier.

mestic animals, and some few even clearly delineate the dental organs of wild and ferocious beasts. As a most typical example of how well the teeth of animals are painted and how carelessly the human teeth are shown, I refer to the world famous picture, "Little Red Riding Hood," as sketched by G. Terrier. Eng. No. 8. (By Braun, Clement & Co.) Here we observe with what care and diligence the teeth of the wolf are outlined, while the smiling and confiding face of the little heroine does not show the milk-white pearls which should be attributes of a beaming smile.

ENG. 7.

"Grandpa Relating A Story."
By H. Tecchi.



ENG. 8.

"Little Red Riding Hood."
By G. Terrier.

That there is need for artists to pursue a studium which shall include anatomy and physiology one observes in the portrayal of animal life, but more especially the human family. And in no feature is mankind so pronouncedly caricatured as in the dental organs. And in order to depict these elements of personality properly and accurately, it will become necessary for the artist who hopes to make portraituring his life work, to matriculate and take the freshman course in some dental college. In this course he will become familiar with the bony framework, the soft tissues, the several vital organs, and the various modifications in sickness, health, sorrow and joy, activity or rest.

In the dental technic departments he can prosecute a study of the teeth—normal or abnormal, natural or artificial. Carving the teeth and applying himself to the prostodontial appliances will most decidedly lend strength to his artistic knowledge. And art students who receive this training will find it thoroughly in keeping with their artistic tendency and consistent with their career in art. The teeth must be studied in relation with temperament, and this latter part of dentistry will be valuable in delineating not only the teeth, but the entire human structure. Even the study of the roots of the teeth will not be foreign to their work, and the carving of them in conjunction with the crowns, further prepare the artists in the knowledge of the various forces which influence teeth, either from natural causes or applied forces, as in orthodontia. It is in this latter field that he can exert a powerful influence in directing subjects while they are sitting or posing. In painting the features of a lady who has a short upper lip and whose teeth protrude and are abnormally positioned, he will have better results if she could be portrayed in the act of laughing or smiling rather than in the stern attempt of closing her lips, in the forced attitude of hiding her teeth.

ENG. 9.

"A Game of Cards."
By J. G. Brown.

ENG. 10.

"Traveling Third Class."
By Heidleman.

And in the event that the protrusion be either superior or inferior, the artist will know that these teeth will appear better if a direct and not a profile view be made. The picture, "A Game of Cards"(copyrighted), Eng. No. 9, painted by that distinguished artist, J. G. Brown, would have obtained a less conspicuous view of the mouth had he given the face a full front view; with a front view the little gamester would have presented a less retracted lower jaw and a more perfect chin.

Again, the artist may direct or influence the subject to have the teeth regulated and render further professional service in advising dental attention relative to conspicuous alloy fillings, missing teeth or such other dental operations as will restore the contour of the lower third of the face. It is permissible to portray the dental organs in a decayed or neglected manner when the artist hopes to signify by this means the poverty of the subject. An excellent example of such a picture we have in the painting by Heidleman, entitled "Traveling *Third* Class." (By permission of the Berlin Photographic Society.) The poor man is depicted in common clothes and his toothless mouth lends in-

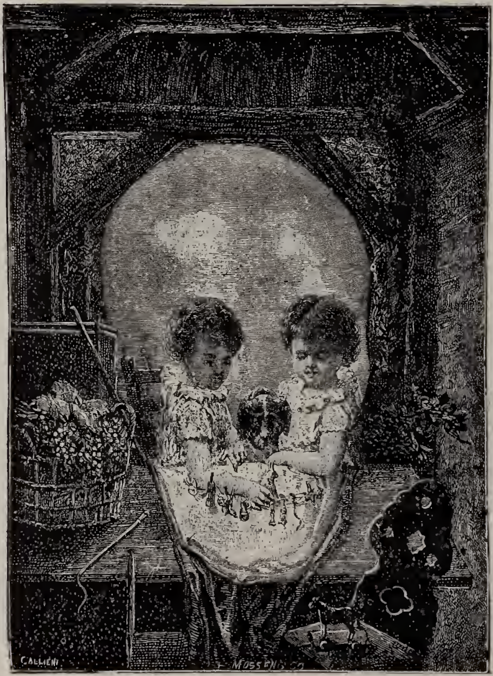
ENG. 11.

"The Nuisance at School."
By Ward.

ENG. 12.

"First of the Season."
By J. H. David.

ference to the charitable features of the painting. The artist's picture of "Traveling *First* Class" is directly opposite; good and rich apparel, well-preserved facial contours and complete natural dentures. But in the former picture (Eng. No. 10) the artist found it advisable to place but one tooth in the subject, though he might have at least given this individual representative anatomical and natural characters, instead of showing it as a cone.



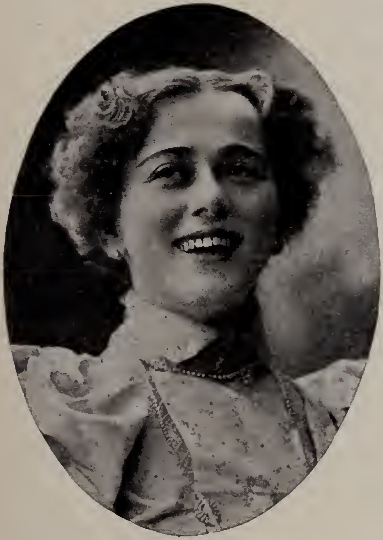
Eng. 13.

"The Living and the Dead."
By Calieni.

Some few artists in order to create a portrait of a humorous character design the face with one or more of the anterior teeth missing. Actors who are playing the role of a comedian not infrequently blacken several of the anterior teeth in order to appear in harmony with the character of a comic. A fair specimen of this class of picture is found in the Ward painting called "The Nuisance at School." The teeth which we see are drawn with sharp and saw-like incisal edges. Eng. No. 11.

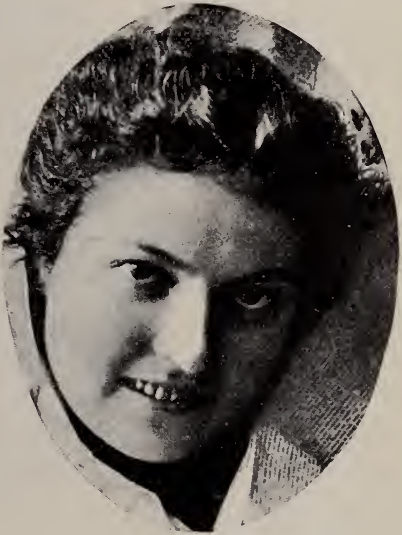
When it is intended to illustrate a character who enjoys a good meal and prandial, the artist invariably pictures the subject with good organs of mastication. This lends a tone to the work which in no other possible manner could be demonstrated. The popular painting known as "First of the Season," by J. H. David, is one of these products, but the artist in his enthusiasm drew the teeth too large and they are ill-shaped. Eng. No. 12.

To a portrait painter, a knowledge of dentistry is indispensable, as it serves the dual purpose of restoring the face, and makes him capable of portraying the teeth in their several denominations. The artists who do not pretend to appreciate the minute lines and grooves which contribute shape and character to the teeth recognize that their work on canvas and on stone do an injustice to the divinely ordained.



ENG. 14.

A Natural Smile.



ENG. 15.

Retouched Halftone.

It has been my pleasure to correspond with many artists and critics relative to the study of the human figure, and most of these painters have replied stating their approval of the necessity of further and better knowledge of this subject. This is what the eminent Dr. R. W. Shufeldt, of Washington, D. C., writes : "The form and contour lines in man, either living or dead, as in other animals, can only be intelligently studied through the investigation of these subdermal structures in his anatomy which are responsible for them. This leads the art student to a consideration of the human skeleton in general and especially such parts as influence the external form of the subject; the same applies to a knowledge of the muscular system, particularily the superficial muscles. For similar reasons it also requires a consideration of all other parts of the human economy that in any way are responsible for its morphology. This will include the hair, *the teeth*, the underlying structures which give rise to the form of the ear, and the features of the face; to the presence of adipose; tendons and superficial vessels and some few special organs. Only such knowledge of physiology will be required as will enable one to appreciate the changes wrought in the form and contour lines of the body when these structures are brought into action. As to the necessity of exhaustive studies of the human form for the purpose of correctly reproducing it in every possible department of art and sculptury, there is no manner of a doubt."

Eng. 16.

A Clear Halftone.
G. H. Benedict & Co.

It is unnecessary for me to dwell on the excellence of this comment, as it must appeal to all present that the truth has been plainly spoken, and by one whom the scientific world freely recognizes.

Ruskin would have drifted into portrait painting but his great love for botany and geology held him close to nature. He did not feel interested in anatomy and physiology, and hence could not enter the portrait studio. His natural tendency for accuracy led him to know that as a portrait painter he would not reach his ideal without founding the art on the scientific studies of anatomy and physiology. His success in painting flowers, clouds, rocks and streams emanates from the keen studium of the sciences which underly their careers. His acquirements of painting the human form were a failure, chiefly because, as he says, of his unfamiliarity with the human form. The human figure, indeed, was the one form of nature which did not appeal to him; it neither lent inspiration nor reverence. The time is not far distant when his word pictures and his pencil delineations will claim the admiration of all students of realism. He was to the art and literary world a most proficient guide and conscientious critic. His microscopic eye penetrated and saw, and his scientific mind observed and classified.

He was a self-made man, and became proficient in the natural sciences through earnest effort. All things in nature were by him reproduced with equal accuracy, and he accorded equal importance to all things which had a divine origin. A blade of grass appeared as much to him as the most sturdy oak. He longed to paint and describe all objects definitely. Artists and dentists should be alike inspired with this same nature worship; the world will profit by such actual imitation, "for it is true art to hide art." Technic and accuracy are the watchwords of the twentieth century. The realist will yet live in the pure atmosphere of science, while the impressionist will see himself exercising his imagination. The coming generations will admire the impressionist, while the realist will receive their love.

Impressionists will be interested, and find considerable comfort in the famous painting by Calieni, entitled "The Living and the Dead," but realists look upon it as an art curio. Eng. No. 13.

The old masters occupied much of their time painting imaginative beings, visions, animals, devils, dragons, and various monsters, while the artist of to-day employs his talents in delineating things and creatures which are true and real and contribute to the happiness of the human family. This love of picturing the real has risen to a point where absolute accuracy is the goal sought. There is an effort on foot to have a higher artistic standard in all our public works. The movement for better art in our national portraits and in our national architecture and sculpture has recently been organized in Washington, D. C., and is known as the Public Art League of the United States. One of the chief aims of this society is to pass a bill through congress requiring that before the purchase of any works of art, as a painting, statue, coin, seal or medal, bank-note or bond, and the like, or anything relating to the growth or history of our country, that such design shall be submitted to the criticism of a national committee of art. And among the officers of this art society are such well-known men as Richard Watson Gilder, C. F. McKim, Aug. St. Gaudens and John La Farge.

In photography as well there is a growing disposition to produce the face as it is, allowing the face to retain the apparently objectionable marks of old age, or other deviations from perfection. The smooth, waxlike portraits may solicit the appreciation of the impressionist, but the realist wants his grandma just as she is. It is now common to see a natural smile, as in Eng. No. 14.

Mr. Cox, of New York, the man who has contributed so much to the science of photography, has carefully studied the human countenance and he has contributed the greatest and most perfect results with the camera, in that he displayed unusual good judgment in arranging his subject. He would entertain his eminent callers for hours until he had caused them to forget that they were at his gallery, and then unbeknown to his callers he would produce the negative, moments before they were aware of the fact. Having people appear in a thoroughly natural manner was his great forte. Once the negative produced he would never retouch it, but allow it to create the toned likeness, undisturbed. His pictures of Beecher, Whitman and scores of others will ever be known as master strokes in the photographic science. In his studio one is not treated as in the conventional studio. You are not told to look at "this point," you are not asked to smile, you are not asked to sit still and listen to a watch click off its long seconds, seeming like interminable minutes; as for the camera it does not seem to play a part in the drama. This is true art in photography. He was always ready to register the photograph when the subject smiled in a strictly unconscious mood. In this the teeth lend a most important attribute to naturalness. The present day practice of retouching half tones, especially of the teeth, should be condemned, for the lines of the teeth and their general character is considerably destroyed, as in Eng. No. 15.

The George Benedict Engraving Company purposely designed a half tone, showing that when the engraving is properly executed such retouching is unnecessary. Eng. No. 16.

(TO BE CONTINUED.)

DENTAL JURISPRUDENCE.*

BY C. E. MILROY, M. A., LL. B., CHICAGO, ILL.

The subject of dental jurisprudence is a comparatively new title in the law. Nearly every lawyer would tell you there is no such science as the science of dental jurisprudence.

The subject has been discussed in a fragmentary way from time to time in various law journals and in the magazines and periodicals of your profession but, so far as I have been able to discover, it has never had the benefit of anything like a separate and thorough treatise except in one work on that subject.

The Philadelphia lawyer is supposed generally to represent the highest development of scientific attainment and ability in the legal profession.

If analogy holds good the work I speak of should occupy a high rank and be well worth the attention of the dental profession, as it is the work of a Philadelphia dentist.

I allude to the work of Dr. Rehfuss, of Philadelphia, a gentleman of eminent professional standing in that great city and well known to your profession. I have examined the work with some care and am indebted to it for many and, to my mind, valuable suggestions and doctrines. It appears to be written with a fair degree of accuracy with regard to the legal propositions it advances.

The definition Dr. Rehfuss adopts in defining and limiting the field covered by his subject is that commonly employed in defining medical jurisprudence; the science which teaches the application of medicine in all its branches to the purposes of the law; substituting the word "dental" for "medical."

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*Address delivered before the Odontographic Society of Chicago, March 19, 1900.

Chapman in his work on medical jurisprudence employs a definition which, to me, appears more satifactory for the purpose at least of this evening's discussion. He defines medical jurisprudence as the science of medicine considered in its relation to the law. This appears to more satisfactorily and more correctly define the limitation of the subject. I apprehend that the science of dental jurisprudence will receive greater attention and investigation in the colleges and institutions of learning of your profession as yourselves as well as the public generally become aware of the value of your profession in relation to the law and the important place it now occupies in reference thereto, as shown by the decisions of the courts.

Its want of recognition is due, in great measure, to the comparatively recent dawn of dental science. Sixty or even forty years ago the science of dentistry was, I understand, but in small measure to be compared to dentistry of the present day. In former times and for long ages the sufferer from irregularities or disease of the denture was turned over to the tender mercies of the barber, jeweler, or even the blacksmith, and it seems to me I have even in my own time heard the name of the carpenter mentioned in connection with the teeth. The first recognition of your profession on the English statute books was in an act passed by parliament in time of Henry VIII, which provided that henceforth the barber was prohibited "from occupying any surgery, blood letting or other thing belonging to surgery, drawing of teeth only excepted." It was not until the year 1878 that the English statute afforded any reasonable or adequate protection and provision for the science of the dentist.

In this country it received no recognition of any value until about the year 1840. About the year 1860 the legislative records here began to be prolific in statutes regulating dentistry, and from that time on to the present the subject has received at the hands of our numerous law making bodies much attention, wise and otherwise, until now the statutes of the various States present all degrees of regulation, from the most lax to the most stringent, and all shades of opinion in the decrees and decisions of the judiciary, from the decision in New Hampshire that all such statutes are void and unconstitutional as in restraint of civil liberty, to the decision of the Supreme Court of Indiana that the legislature has plenary power in this exercise of police jurisdiction. Both are wrong. It is a subject which demands *reasonable* regulation, and that only. The question for the law to decide is merely whether a man has the requisite knowledge and skill to practice your profession. If so, the law should afford him every means and protection in so doing. It is questionable whether in any of these laws regulating the license to practice any trade or profession, an essential requirement should be a diploma showing years of study at a recognized college. Such a course in effect draws a line between rich and poor and places money too much on a par with brains. It is a delegation to a college of the duties which the examining committee should perform. However, the question of convenience, which is also a rule of law, may have some weight in this connection, as the law adopts the most convenient method.

It appears to me that the statute of this State makes a fair and just provision. In this State any man who can demonstrate to the Board of Dental Examiners that he has had the requisite skill and learning must be admitted. About the only defect which appears to me in the statute is the extension of the right to practice dentistry to the medical profession.

I think the average "doctor" is about as well qualified to follow your learned profession as a lawyer would be after about three weeks spent in studying dentistry. It is a subject as to which, in these times, the physician is about as much a layman as any one else.

The national law also needs some regulation and change with regard to dentistry. Patents are allowed and exist with reference to many and the most important processes and appliances pertaining to your profession. These patents may be divided into three classes—surgical, surgical-mechanical and mechanical.

Surgical patents may be illustrated by a patent which was allowed for a process of removing the nerve by directing a stream of volatile liquid against the tooth until the nerve became benumbed or deadened and so removable. Also by patents for engrafting of teeth. Surgical-mechanical patents are illustrated by the various patents issued for devices and methods of filling and restoring the form and appearance of the teeth. Mechanical patents consist of the monopolies granted for permanent and removable bridge work, hollow crowns and other inventions and devices of prosthetic dentistry.

All this is wrong and illiberal. It does some good to a few in a financial way, and doubtless affords some encouragement to industry and research, but pecuniary reward is hardly a worthy object for dental scientists.

When a client comes to his dentist for treatment the practitioner should not be compelled, after he has investigated the needs and requirements of the case in hand, to turn to an elaborate set of pigeonholes and examine a multitude of patentee licenses to see whether he has the right to apply the remedy the case indicates. On the contrary, his hands should be free and unfettered to use and apply, to the best of his skill and ability, the very best means that the research of any of his brethren afford. You should proceed without delay to place yourselves on the broad and liberal plane occupied by the medical profession, where the labor of one is for the benefit of all, both of his brothers and of humanity at large. The time has passed when the dentist should seek to keep to himself the learning of his profession as his personal property.

I infer from the reading of your minutes this evening that something of this character is being urged in congress by this society. The Central Dental Association of Northern New Jersey recognized this need some years since and formulated a bill to be presented to congress for that purpose. I think such a law would be constitutional. The congress is not restricted, like the State legislatures, from passing bills impairing obligations of contracts. It has the right to abrogate all its contracts, so if a patent is a contract it can be lawfully annulled. If it is personal property it can still be done away with, as the congress may take what property it will for the public welfare, the only constitutional restriction being that the owner must be compensated, i. e., the property be taken by due process of law.

Considering the rapid and great importance of the development of your profession the demand for such legislation is urgent.

You will no doubt be called on by the courts from time to time to testify in various matters as dental experts. The subject of compensation for such service is one of much importance. It seems to me it is no little sacrifice for men of your calling to be dragged to the court room and compelled to loiter about for several days and then go through the ordeal of rigid examination and cross examination for $1.10 per day, when your only offense is that you have become eminent in your profession.

This question was put to the test in Dixon vs. the People in this State a few years since. The court refused an expert fee (basing his decision against the proposition of taking property without due process of law) on the ground that property cannot be predicated except of tangible objects and rights growing thereout. It would seem that with regard to most people, both in the judiciary and elsewhere (though there may be possible exceptions), it may be said that they possess tangible brains and that the rights pertaining to a brain which had been educated at the expense of much toil and sacrifice might therefore be said to be property and should not be taken without compensation for the benefit of others. Such a proceeding appears much like legalized robbery. Such rights are as much property as are the rights pertaining to the dollars of a man who runs a department store or packs pork at Bridgeport. The treasures of Pallas are worth the gold of Midas.

The law in England allows expert fees. Here we have not yet reached that point. As to the manner of testifying, the experience of a certain small boy is a good example for all witnesses. A lawyer, who was cross-questioning him and getting more evidence than he wanted, asked the boy if he had been instructed what to say. The boy said yes. On further inquiry, he said that his father had instructed him to tell the truth as nearly as he could remember without regard to any badgering lawyer. If you do not know, do not fear to say so. If driven too far you can, as a last resort, console yourselves with the aphorism that "a fool may ask questions a wise man cannot answer."

I do not mean to say that my legal brethren are mentally deficient, but, if a fool can ask unanswerable questions, much more may he, whose business is the interrogation of witnesses, ask questions beyond the power of wise men to answer.

The evidence of the dentist has proved peculiarly efficacious in such questions as identification of the living and dead. The denture, above all else of the animal tissue, withstands the tooth of time and active destructive agents, such as the attacks of fire or chemicals. The evidence of the dentist has proved of greatest value in such cases as the Webster-Parkman murder, in the identification of the body supposed to be the murdered Mason Morgan and of Dr. Cronin's remains. Also in freeing persons supposed to be Tascott, accused of the Snell murder. In all these cases the dentists' evidence turned the scale of justice.

In reference to compensation for your services in exercise of your profession the law holds you are entitled to remuneration in proportion to the value of your services, or on your contracts therefor, the same as any other professional man or person who renders service or a thing of value to another. Owing to the peculiar early history of your profession the question of fees does not present the same historic features as in law and medicine. In these ancient professions in olden times the fee was an honorarium. It was considered that the benefaction bestowed gave rise to sentiment of gratitude and moral obligation more than sufficient to insure proper remuneration. That it no more needed the sanction of law than did the enforcement of filial duty. But either human nature has deteriorated in the propensity to be subject to the obligation of gratitude and the memory of benefits bestowed, or else the old idea was a mistake. Now all professional men are by law entitled to their pay the same as the merchant, the laborer, the manufacturer.

I know your primary aim is not the almighty dollar. Men who practice the liberal professions have higher aims. When one passes the point where means of substance is assured the dollar is a secondary consideration. You practice your profession because you are devoted to it for its own sake. But still it is discouraging to be made the victims of petty swindlers and imposters, and it becomes in time a matter of no small concern. Every professional man's books are encumbered with a lot of waste lumber in the way of worthless accounts. This State has made provision against this class of small but pestiferous offenders by passing a rigorous garnishment law. Under the law all debts owing to your debtor are, as a rule, subject to garnishment, the only exception being an allowance from wages of $8 per week allowed to the person who is the "head of a household and residing with the same." You can garnish all above that amount.

In this city this law has been found peculiarly effective. Here about nine out of ten of our men seem lacking in the spirit of American independence on the subject of making a living. Nearly every young man is looking for a job. His dream is "a situation." Offenders against honest dealing are found among these place-holders and this law brings them to time effectually. Employers soon get weary of defending employees against just suits at a cost of from $25 to $50, and it has become a standing rule with a number of large corporations that garnished employees must pay up or quit.

It is your duty to push such men, as the continuation of their dishonesty is injurious in many ways, one of which is that it has a tendency in the course of time to impair that feeling of benevolence which distinguishes those who minister to the ills the flesh is heir to and causes them to turn more to the financial side of the question in their relation of physician and patient and so tends to deprive the practitioner of those resources which lie only at the command of the physician who is in thorough sympathy and benevolent accord with him who seeks his aid.

The usual defense put up by patients of this class is that the service was not properly performed or was of no value a positive injury in fact, and they frequently further entrench themselves behind dire threats of suits for malpractice. In most cases this will be found a sure subterfuge, and their fortifications fall at the first stroke. However, malpractice suits have become a serious menace. They have become the bogey man in the pathway of practitioners of the healing art, so much so that a large percentage refuse to keep their property in their own names but invest the wife or some near relative with the legal title.

This is not as it should be, but the danger exists of having the fruits of the labor, toil and study of years swept away in a few days of litigation, notwithstanding conscientious devotion to professional duties. The dentist, to avoid this, should, among other precautions, see that all his acts should, as far as possible, be within the unquestioned limits of his profession. Dentistry may, I suppose, be defined as the art and science of treating, mechanically, medically and surgically, the denture and its appurtenant or supporting tissue. If the operation is beyond the limitation the law fixes for the dentist and is within the domain of the physician or surgeon, the dentist would be held answerable for any unfortunate results. If the unfortunate result is from an act within the limits of his profession, he then is exculpated if he has used ordinary care and skill such as the case and the circumstances render reasonable. Beyond the limitation of his profession he cannot safely go, even with the consent of his patient, as no one can consent to become the object of malpractice.

There are many grounds on which the question of malpractice may be based. They might be classed as use of improper or unclean instruments, unskillful use of instruments, wrong operations or remedies, unskillful use of methods or remedies and unauthorized operations or remedies. The author I have alluded to advocates the venturing somewhat into the field of medicine. From a legal point this seems questionable. The law of the State prohibits positively the practice of medicine or surgery by other than a licensed physician.

The time is too short to consider this important subject at any length. The administration of anesthetics, however, should be especially mentioned. Dr. Rehfuss states, at time of writing his book, that but three anesthetics were in practical use—chloroform, ether and nitrous oxide gas—and advocates, apparently, the legal right of a dentist to administer any of them. There are two others which have since been much in use among your profession—cocaine and the application of that or some other anesthetic by cataphoresis. The latter method, I understand, though for some time in general favor, is now little used. In all of the others, except nitrous oxide gas, the dentist, when he uses them on his own authority, does so at the assumption of great risk so far as the law is concerned. He must remember that if results are unfortunate and he is called on to defend, he goes, not before a jury of his peers—not a jury of educated dentists or physicians—but before a court of laymen, of which his honor on the bench is one. All are ignorant of your profession, and, besides, it can readily be shown that the very foremost physicians of the world are doubtful as to the conditions that indicate and contraindicate the administration of either or any of these anesthetics.

It is safest and best to have a medical friend at your elbow. The law makes his back broad enough to bear it; let him shoulder the burden.

A case occurred not far from this audience room which well illustrates this. A female patient called on a dentist for some painful operation and insisted on anesthesia. He called in a physician who examined and expressed some slight doubt as to the heart condition and finally declined to advise anesthesia. The client was importunate and at length the dentist assumed the risk. In a few minutes, after an apparent recovery, she fell in violent convulsions and only the immediate availability of proper remedies and heroic efforts of the physician prevented a successful damage suit for $5,000.

In this connection another serious matter is worthy of attention. Anesthesia is highly productive of erotic sensations and hallucinations in female patients and a number of instances are on record where they have related with the most convincing and circumstantial detail, criminal assaults during anesthesia, which both evidence and reason shows were illusions.

One most eminent dentist in Philadelphia died in the penitentiary, a convicted felon, on account of a charge of this kind. Always have a disinterested witness present. One most damaging accusation of this kind, perfect in all the detail of its particulars, was defeated only by the fact that the lady's husband was present during the entire period of anesthesia and, by his evidence, contradicted the charge absolutely and so prevented the ruin, disgrace and punishment of an innocent man.

TEMPERAMENTS.*

BY GEO. B. PERRY, D. M. D., CHICAGO, ILL.

Temperament, as defined by Gould, is a term applied to a mental disposition and physical constitution of an individual. As the mind in a large degree has control over matter, so the mental advances or retards the physical and vice versa. Therefore the study of temperament is a psycho-physiological one and should be of interest and importance to dental practitioners, requiring, as it does, close perception to correctly interpret its various phases as presented to us.

The characteristics as indicated in the mental and physical aspects are distinctive and in many cases quite pronounced. It is only recently I have been enabled to secure some of the literature upon this subject for which I have been searching, thus necessarily limiting the scope of this paper. However, I trust the expression of the ideas of others, with my own, may be of interest to you. My deductions have been made from personal observation and not from experiments; therefore my range is more limited and possibly less conclusive than otherwise.

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*Read before the Chicago Dental Society.

It is not the intent of this paper to dwell upon the different temperaments as relating to the color, form, surfaces, articulation or quality of the teeth; but rather to confine myself to the characteristics and idiosyncrasies with which we have to deal, in contact with our patients; the purpose being to make a closer study of those characteristics, that we may develop our judgment in successfully handling trying cases upon which we operate and determine more clearly the length and extent of the operation to the advantage of the vital forces of the patient and the operator. For information upon temperaments concerning the characteristics of the teeth and also their relation to dental prosthesis, I will refer you to an essay read by Dr. E. M. Flagg, of Asuncion, Paraguay, at the World's Columbian Dental Congress and printed in its records, and an article by Dr. A. H. Thompson, of Kansas City, in the American Text-book of Prosthetic Dentistry, edited by Dr. C. J. Essig.

As far back as the time of Hippocrates the distinction between temperaments was recognized, and the theory of that celebrated writer depended upon what were then known as the four primary components of the human body—the blood, the phlegm, the yellow bile and the black bile. Persons in whom the blood predominated, he said, have the sanguine temperament; if phlegm be in excess, the phlegmatic temperament; if yellow bile, the choleric; and if black is more abundant, the melancholic temperament. As the original classification, this has influenced writers and students to a greater or less degree down to our own times, but the marked advances in physiology and humoral pathology of comparatively recent times have caused the defects in the early theories to be too apparent not to merit a change in description and classification. At a later date Dr. Gregory added a fifth one, calling it the nervous temperament. I will use the four basal temperaments, as given in Dr. Flagg's paper, continuing the older terms with them. They are as follows: Bilious or melancholic, sanguinous or sanguine, nervous or choleric, and lymphatic or phlegmatic. To give the indications in detail of these different temperaments would require too much space and time to read, therefore, I will ask your consideration in referring you to the more modern articles, in which they will be found in detail, simply mentioning some of them in the individual cases cited later on.

A particular temperament is the result of the preponderance of one of these elements over all the others. The ancients assuming such a possibility, were accustomed to speak of the temperamentum temperatum, that is, the temperable, harmonious, or balanced temperament; but it can scarcely be conceived that an instance of such an equilibrium in all the parts can be found, although there may be a near approach to it. The theory is then developed that different races and peoples are distinguished by some one or a combination of two of these temperaments mentioned. For example, the French are sanguine, the English bilious or melancholic, the Spanish and Italians nervous or choleric, and the Germans lymphatic or phlegmatic. More generally still, the Caucasian race is sanguine, the Mongolian melancholic, the Negro phlegmatic, and the Malayan choleric.

The nervous or choleric and the lymphatic or phlegmatic are temperaments of action rather, while the sanguine and bilious or melancholic are temperaments of feeling. Different authors have a diversity of expression which upon analyzing means practically the same thing. Lotze's idea of the division of temperaments is as follows:

1st. The differences in kind and degree of excitability for external impressions.

2d. The greater or less extent to which the ideas excited reproduce others.

3d. The rapidity with which the ideas vary.

4th. The strength with which feelings of pleasure and pain are associated with them; and finally the ease with which external actions associate with these inner states themselves. Mr. Bain, in speaking of emotion, which he has treated at some length, says, " I look upon the expression, so-called, as part and parcel of the feeling. I believe it to be a general law of the mind that along with the fact of inward feeling or consciousness, there is a diffusive action or excitement over the bodily members." And again, in another part, " States of pleasure are connected with an increase and states of pain with an abatement of some or all of the vital functions."

Dr. Thompson says: "The basal temperaments are never found alone, but usually in combination with other elements which modify the original base, the compounds being generally binary, i. e., a base with one prominent modifying factor and called a *binary temperament.* Thus, the sanguo-bilious means that the sanguine temperament is most prominent and the modifying element is the bilious. Other elements may be present, but these cannot always be diagnosed with certainty."

The following table is given by Dr. Ives of the binary temperaments:

Sanguo-bilious.
Bilio-sanguine.
Lymphatico-bilious.
Bilio-lymphatic.
Nervo-bilious.
Bilio-nervous.
Nervo-sanguine.
Sanguo-nervous.
Lymphatico-sanguine.
Sanguino-lympathic.
Lymphatico-nervous.
Nervo-lymphatic.

A partial description of physiognomy given by Lavater says: "In a restricted sense it is the art of deciphering and the interpretation of the inward faculties. Pathognomy in a physiognomical interpretation, is the science which treats of the passions. The first considers the individual in a state of rest; the other examines the man in a state of action." According to Ladd, it is impossible to classify the temperaments with the use of methods required by strict scientific induction. The individual can judge of his own temperament only by remembering his actions and the states of consciousness connected with them. But upon such a point memory, and even the immediate recognition of consciousness, are but little trustworthy. Few things are more common than for the individual quite to misconceive and misinterpret his own mental states and tendencies. On the other hand, we have no means of judging the temperaments of others except by their actions, using the word action in its broadest signification. A large part of such judgment is unavoidably misjudgment. But notwithstanding all the doubts and uncertainties which attach themselves to the subject of temperaments, those who are carefully observant of their fellows will continue to believe that important and determining natural differences exist among them.

A large degree of susceptibility to sensation is naturally accompanied by feelings of attraction or dread toward the object of sensation. This fact forms a basis for the "choleric" or nervous temperament; and finally, the so-called phlegmatic or lymphatic temperament depends upon the degree of mental apprehension with which different objects are seized and the consequent emotions of satisfaction or disgust.

Mantagazza, in his work on Physiognomy and Expression, says: "All the libraries in the world would not suffice to hold the thoughts and the feelings which the human face has awakened in man since this poor intelligent biped has trodden the soil of our planet. Religion has made it a temple of prejudices and adoration; there justice has sought the trace of crimes; thence love has gathered its sweetest treasures; finally, science has found there the origin of races, the expression of diseases and of passions and has there measured the energy of thought. Art has represented it in all its infinite variety and mobility of expression; the first artist, who with flint style sought to trace some lines on the bone of a reindeer or a stag's horn, produced with a circle and three or four points a coarse sketch of a human face. This universal cult of the human face is fully justified. In it we find assembled in a small space all the organs of the five senses, nerves sufficiently delicate, muscles sufficiently mobile, to form one of the most expressive pictures of human nature. Without words our faces express joy and grief, love and hatred, contempt and adoration, cruelty and compassion, delirium and poetry, hope and fear, voluptuousness and bashfulness, every desire and every fear, all the multiform life which issues each instant from the supreme organ—the brain."

An amusing anecdote in the collection of Latater may give an idea of the value of physiognomical art:

"At what do you value my face?" a stranger asked of a physiognomist. The latter replied that it was not an easy thing to value. "It is worth 1,500 crowns," replied the other, "for this sum has just been loaned to me on my face by one who did not know me."

One of my patients told me of his experience in starting his iron and steel plant in another town. It had been idle for two years and he purchased it to begin operations as soon as possible. He went to the vice president of one of our largest banks and borrowed $40,000, and to another bank, securing a loan of $35,000. The plant was not earning anything, in fact would not until the new machinery was in place and repairs made. The president of the first mentioned bank had quite a heated discussion with the vice president for accepting such a risk with such problematic security, but the latter's reading of the temperament of the borrower was correct and the money was paid in full, with the accrued interest, in the specified time.

Herbert Spencer, in speaking of the feelings, in his Principles of Psychology, 1885, remarks as follows: "Fear, when strong, expresses itself in cries, in efforts to hide or escape, in palpitations and tremblings; and these are just the manifestations that would accompany an actual experience of the evil feared. The destructive passions are shown in a general tension of the muscular system, in gnashing of the teeth, and protrusion of the claws, in dilated eyes and nostrils, in growls; and these are weaker forms of the actions that accompany the killing of prey."

Sir Charles Bell says: "It has been maintained that what are called the external signs of passion are only the concomitants of those voluntary movements which the structure renders necessary."

Herbert Spencer, in a valuable essay on the Physiology of Laughter, insists on "the general law that feeling passing a certain pitch, habitually vents itself in bodily action, and that an overflow of nerve force undirected by any motive, will manifestly take first the most habitual routes; and if these do not suffice, will next overflow into the less habitual ones."

Charles Darwin, in his work, Expression of Emotions in Man and Animals, in referring to the foregoing remarks of Spencer, says: "All the authors who have written on expression, with the exception of Mr. Spencer—the great expounder of evolution—appear to have been firmly convinced that species, man of course included, came into existence in their present condition."

Sir Charles Bell maintains that many of our facial muscles are purely mental in expression, or are a special provision for this sole object. But Darwin says, "The simple fact that the anthropoid ape possesses the same facial muscles as we do, renders it very improbable that these muscles in our case serve exclusively for expression; for no one, I presume, would be inclined to admit that monkeys have been endowed with special muscles solely for exhibiting their hideous grimaces. Distinct uses, independent of expression, can indeed be assigned with much probability for almost all the facial muscles. Sir Charles Bell asserts that with the lower creatures there is no expression but that may be referred, more or less plainly, to other acts of volition or necessary instincts. Their faces seem chiefly capable of expressing rage and fear. But Darwin, again commenting upon his idea, states, "Man himself cannot express love and humility by external signs so plainly as does a dog, when with drooping ears, hanging lips, flexuous body and wagging tail, he meets his beloved master. Nor can these movements in the dog be explained by acts of volition or necessary instincts, any more than the beaming eyes and smiling cheeks of a man when he meets an old friend."

In an article entitled "Illusions and Hallucinations," one of a series by Prof. William Romaine Newbold, of Princeton University, he refers to "the development of a mental state from the stage which we term idea, to that which we term sensation." Continuing, in part, he says : "Making use of a physiological distinction, sense impressions are those mental states which are primarily initiated by a current from the outlying regions or periphery of the body, especially from the organs of sense. Since these currents are usually due to the action of physical forces upon the body, sense impressions generally give us information as to the condition of the material world. All other mental states should be classed as ideas, even though they simulate sensations so closely as to be scarcely distinguishable from them. From this point of view the peculiar characteristics of the impressions of sense are due to some peculiarities in the cortical processes which are their physical bases, peculiarities which are usually due to the action of the peripheral current. Thus it may be that the sensation is more intense because the current acts upon the stored up energy of the cortical cells much as a spark acts upon gunpowder. If precisely the same kind of a cortical process could be induced in any other way than by the action of a peripheral current, we would presumably have an imitation sensation."

We find temperament expressed very frequently in correspondence. Thoughts are often transferred to paper in closer detail and connection than can be given utterance to by word of mouth, and yet with some people the voice and expression of the mouth add greatly to the interest and interpretation, when one has an opportunity of studying them close at hand. How many times a sweet, well-modulated voice will attract attentive listeners, even though the conversation may be mediocre; on the other hand, we find people paying marked attention to an enthusiast with personal magnetism who is expounding his views in a manner that for the time only, carries conviction with it. It is always a pleasure to listen to an orator, one who introduces his subject in a quiet way, but gradually and forcefully approaches his climaxes. Such persons sway their audiences and are a power in themselves. I might mention the late Robert G. Ingersoll as an exponent of the magnetic speaker.

Mlle. Calve, in her various roles, particularly that of Carmen, exhibits a remarkable temperament, which is diversified, inasmuch as she never gives it twice alike. Her interpolations in that character are always unique and attractive. The music of the opera she follows closely, but her concomitant action represents her feeling at the moment without being in any way inharmonious or exaggerated. She is decidedly of the nervo-bilious type, being average in stature, with the nervous and bilious elements present, the former predominating, bones inclined to be weak, her muscular development wiry and cord-like, contour broad shouldered with full chest, which her singing naturally develops, slow pulse, high cheek bones, small jaws, chin small and pointed, olive skin inclined to sallowness, black hair, rather coarse, and expressive black eyes full of snap and luster.

Probably nowhere is temperament exemplified to a greater degree than in music, that art which drives dull care away and inspires one to realms of bliss. The more one studies music with a view to interpreting its beautiful thoughts, the more he realizes its harmonious suggestions. Among the famous composers of symphonies, Ludwig von Beethoven stands at the head. His music, the acme of harmony and counterpoint, illustrates his mood at the time of its writing, particularly in the greatest of all symphonies, his ninth, opus 125, "that represents the sum total of the experiences of Beethoven's whole life," which, analyzed by

Mr. Arthur Mees, assistant conductor of the Chicago Orchestra, is "a biography, as it were, expressed in music, which was dedicated to the most conscientious endeavor to the perfect development of faculties in themselves of the highest conceivable potency and to the realization of art ideas as lofty as they were pure and true to noble principles. Hand in hand with the progress in the means of musical expression, which he signalized with every new work, there went the deeper and broader conception of life, more intense sympathy with the spiritual tendency of his time and the prophetic prescience of its future course. Isolated by deafness from association with kindred natures, his self-concentration became all the more sharply focused on the hopes and doubts which agitated his mind, and compelled recognition in the language which was peculiarly his own. So completely had he become identified with the art, that he felt justified in inventing any methods of expression which met the requirements of his emotional state, well aware that his musical nature had been so thoroughly trained and developed as to have become incapable of misleading him. It is stated Beethoven's mind was occupied for more than thirty years with what finally became the last movement of the Ninth Symphony. At the urgent request of a large number of artists and music lovers a benefit concert was given to Beethoven at the Kärnthnerthor Theatre, in Vienna, on the 7th of May, 1824, to make possible the performance of his Mass in D and the Ninth Symphony. At the close of the latter a storm of applause greeted the composer, who was standing beside the conductor that he might indicate the tempos of the different movements, but he was not even aware that the last chord had died away, and continued to beat time until his attention was attracted by the contralto who had sung in the solo quartets, when he turned to face the audience, who redoubled their demonstrations of pleasure as they realized what had inspired them with enthusiasm had fallen on the deaf ears of one who had created it all, and was to him perceptible through the exercise of his powerful imagination only, and who was so sorely in need of sympathy and acknowledgment. A general synopsis of the four movements may be of interest, given very briefly: In the first movement there is a struggle, conceived in the greatest grandeur, of the soul contending for happiness against the inimical power which places itself between us and the joys of earth. As Goethe describes it, 'Renounce thou must—Renounce.' Power, resistance, to strive, to long, to hope, almost to attain, again to vanish, to search for anew, to struggle again—these form the elements of this wonderful tone picture. In the second movement wild delight seizes us at once. It is a new world which we enter, one in which we are carried away to dizzy intoxication. There is suddenly disclosed to us a scene of worldly joy and happy contentment. In the third movement how differently the tones speak to our hearts! How pure, how celestially soothing as they melt the defiance, the wild impulse of the soul harassed by despair into a soft, melancholy feeling! It is as if memory awoke within us—the memory of an early enjoyed, purest happiness. A harsh outcry begins the transition from the third to the fourth movement—a cry of disappointment in not attaining the contentment so earnestly sought. Then with the beginning of Schiller's 'Ode to Joy,' which he incorporated in this last movement as a fitting climax, we hear clearly expressed what must appear to the anxious seeker for happiness as the highest lasting pleasure."

I may have imposed upon the patience of my auditors in devoting so much time and space to a musician and his compositions; but if so, I will ask your pardon, for to me nothing has a stronger influence upon temperament than music. A drum and fife will always arouse the martial spirit in a patriotic person and proves a powerful incentive to action in war. The conditions are very few where music, in one form or another, does not have a desirable and beneficial effect. When one is disappointed, unfortunate, ill, depressed, melancholy, excited, music has a tendency to change the thought current and remove in a degree from the mind of the listener the circumstances which brought about the condition. It is true that some temperaments are more amenable to this treatment than others, but they are comparatively rare which are not influenced by it in a measure.

In referring to temperament as expressed in poetry, it would take pages to simply mention the names of poets and their works in which we find the varied characteristics described, which is equally true of prose writers. History furnishes us an unlimited field for this study and the motives that prompted the various persons to commit their acts of generosity, valor, murder or treachery. In a portrait that is a perfect counterpart of the living subject, how often we find ourselves studying the face intently with the purpose of interpreting the character from the features presented on the canvas.

There are those who assume to tell from a person's handwriting what their temperament is, and I have heard them give a good description of the one who did the writing in a number of cases. In graphology the formation of the letters indicates the distinction in points of character, but I am not sufficiently familiar with it to give you a comprehensive idea of them; suffice it to say that full rounded, well shaped letters represent to the graphologist certain conditions, while either short or long formations mean something entirely different. Again, the angle is taken into consideration, whether it be backhand or a forward movement. One of the finest men I have ever known, dean of the law school of one of our largest universities and a man of the strongest character and highest integrity of purpose, writes an almost illegible hand.

To give a description of the numerous cases I have noticed would be a burden to you, and therefore I have thought best to mention only three or four which were of interest to me.

A Mrs. H., about thirty-nine years of age, came to me a little less than two years ago for dental work, and upon examination I found necrosis of the left superior maxilla due, I think, to the imperfect root filling in the cuspid, and indicating a surgical operation. She is below the average height with a nervo-bilious combination of elements, bones small but strong, muscular development wiry and cord-like, well proportioned contour, active pulse, well shaped features, fair complexion, rosy cheeks, prematurely gray hair of fine texture, clear blue eyes and a bright, vivacious expression. She was anesthetized with ether in half an hour and took it without much effort being apparent. I performed the operation and she made a perfect recovery, the whole time consumed being about two hours. As the process of bone formation was slow, it was decided to operate again, and I took her to Dr. T. W. Brophy, who has had a very extensive experience in such work. He repeated the curetting precisely as at first, and the case continued to improve. When they were ready to administer the ether for the second operation, she left her chair in the reception room with a light step and a smile upon her face, which seemed inexplicable to the other patients, who had the usual dread of anesthetics. It took a longer time for her to be placed under the influence of the ether and the recovery was not so rapid, but there were no pronounced after effects. Dr. Brophy remarked she was one of the best patients he had ever seen, and I can heartily concur in that statement. She had confidence in both operations and therefore yielded readily to the conditions. Had there been a feeling of uncertainty, the difficulties attending such an operation would have been increased. She submits to the superficial curetting which is necessary occasionally in order that the surfaces may be kept fresh, with a good grace and slight hesitancy, although it is increasingly painful as the circulation becomes reëstablished in the parts.

Miss S., not quite seventeen years of age, exceptionally large for her years in height and general physical development, is of the lymphatico-nervous type, muscular development full but moderately strong and active, contour full and round, blood thin, and heart inclined to be weak, face round, cheeks full and lips rather thick, complexion naturally pale except when flushed from some exciting cause, hair dark brown, eyes of a light shade of brown. She makes an effort to control herself when undergoing a dental operation, but has frequently broken down and given way to hysteria while sensitive cavities were being prepared for gold filling, particularly in the upper incisors when separation was necessary. While this patient is a trying one to work upon, she is amenable to kindness and appreciates considerate treatment.

Another case is that of Mr. H., a man of considerable wealth, who spends his time in search of pleasure and relief from his afflicted stomach. He is about fifty-eight years of age, of nervo-bilious make-up, average stature, bones weak, muscles small, weak and poorly developed, contour slight, circulation irregular, high cheek bones, small jaws, sallow complexion, gray hair, formerly dark, steel blue piercing eyes with an expression of distrust. He came to my office some years ago to have an upper lateral attended to. It was so far disintegrated by caries the best treatment for it was a crown. I scored the gingival margin with a thin edged wheel on the labial and palatal surfaces and placed the excising forceps in position to cut it off. I pressed them together quickly and the broken down crown flew on the floor. He as quickly left my chair and was in the reception room adjoining with a marked degree of alacrity. I went to him in a quiet way and asked him what had disturbed him. He replied, "You have broken the root into pieces and it is ruined." I talked with him a moment and reassured him. It had the desired effect, for he again sat in the chair and saw in the mirror the small flat plane of the root where the crown had been separated just as I intended it should be. Realizing what a wrong impression he had gathered from the sensation of excision, he quieted down and I put the crown on with no further uneasiness on his part. Since that time I have done considerable work for him and he has been entirely satisfied with the result. Had I spoken sharply or in a manner to anger him, he would undoubtedly have left my office never to return again.

Through the kindness of Dr. George N. West I am permitted to add the following case, which occurred in his practice at the time cocaine was being generally introduced for local anesthesia, and I give it in his words:

Type, nervo-sanguine.

Patient, Mrs. P., age twenty-five, medium stature, bones strong, not strong physically, well rounded figure, quick pulse, but not firm. Jaws small, chin rounded, complexion dark, hair black, eyes brown. Accompanied by her husband and a lady friend, she called to have right inferior third molar extracted. She insisted upon the use of cocaine, which had previously been used with good effect upon her husband. A few questions elicited the information that she had been reading about the use of cocaine and knew *all* about its effects. This fact, and the knowledge that she was not in robust health made me cautious, and I decided *not* to use cocaine. Calling her husband and lady friend into the adjoining room, I requested them to watch everything I did, but not to speak until I gave them permission. Filling a small bottle with distilled water only, I placed a hypodermic syringe filled with the same liquid on the bracket in plain view of the patient. I then used a *new* camel's hair brush and painted two or three drops of the distilled water on the surrounding gum tissue, to prevent pain from the introduction of needle. A drop of the water trickled down the patient's throat and in less than two minutes she demonstrated every prominent symptom of cocaine poisoning. Everything was done for her relief, but in spite of stimulants, *brandy*, aromatic spirits of ammonia for nausea, etc., she fainted away and repeated same act, after short intervals of consciousness, four times in thirty minutes. This case differs from those in my own practice and shows the effect of auto-suggestion.

I have cited cases where the nervous element predominated or was one of the two important bases, believing that the majority of our patients exhibit symptoms of that type and therefore require the closest study and attention.

In retrospection of this paper and considering its object, we find in general that temperament is analogous to personality, one being as diversified as the other. Were I to attempt to cite a case that would represent each of the binary temperaments as given above it might be wearisome to you, but with the table before you it will increase your interest in this important subject to select cases among your patients which would adequately represent each one mentioned.

There are very few general rules that can be laid down for the treatment of cases, as each individual case requires special study and treatment. Concentration of thought upon a dental operation, augmented by the different phases of apprehension which patients so frequently have, particularly those of the nervo-bilious and nervo-sanguine types, who draw upon their imagination or allow their mind to reach forth for the things that *may* happen during the time they are in the chair, becomes as a reality to them and they increase their vital tension proportionately. It is within the province of the dentist to reduce such tension to a nominal degree in the majority of cases and thus close the appointment, having the work accomplished with the minimum amount of lost strength and courage of the patient.

The development of an idea is sometimes traceable to a simultaneous but disconnected sensory stimulant. When preparing a sensitive cavity patients frequently close their eyes and the thought image is intensified to the point of expecting the operator's next move to uncover or puncture the nerve. It is an imaginative effect or magnified condition of reality.

It is very essential that the dentist get en rapport with his patient, studying carefully the indications as presented to him. This requires keen perception in properly analyzing patients, and the more one cultivates that faculty the less trouble arises from an apparently perverse attitude. Under no circumstances is it wise to lose control of one's self, for in so doing you weaken your position. The nature of the work is such as to arouse fear, apprehension and a general condition of uneasiness; therefore, it is to the best interest of both the operator and the patient to establish a feeling of confidence at the earliest moment possible, and in so doing much more can be accomplished in less time, with a marked decrease of the pain, real or imaginary, to the patient. We are not familiar with many trials our patients are called upon to undergo before they come to the office, which might cause an excessively nervous condition, and one may be inclined to speak abruptly if they show restlessness or put up their hands to prevent the movement of an instrument in a certain direction; but a calm, quiet presence will invariably produce a better result than a sharp remark. The operator should always be in control of the situation and to that end must resort to firmness at times, for there is a class of patients who need a stimulus of that nature to develop the necessary fortitude. With the constantly improving means at our command for the relief of pain and to facilitate work, our task is much lighter than with those old time men who produced such excellent results at a greater expenditure of vitality to both.

Environment and occupation in daily life are prominent factors in the molding or changing of temperament. Frequently the dentist is keyed up to a high pitch from the conditions present, but this should not be perceptible to the patient.

The inverse ratio of courage, as often displayed by persons who are of large physical proportions, demands a decided attitude upon the part of the operator for successful results, with the use of such treatment as will cause the least possible pain. The effeminate class require courage to be given them, and a salutary effect is produced by carrying your point without their realizing it, thus disciplining them with an imperceptible force. Children deserve our closest study, for they cannot appreciate the necessity of causing pain to them, and are ofttimes impressed with the idea that the dentist is a cruel man as a result of the unnecessary hastening of the work. Their little minds are actively at work, and they are hypersensitive to pain; therefore, it becomes the operator to make the best impression upon them possible, that they will return to him without being forced to do so by parental authority. They frequently have an exaggerated idea of the horrors of the dental office from the many remarks upon that subject made before them by their elders. Under no circumstances should a child be deceived by a dentist, for once they have that lack of confidence it is apt to follow them through life. I have had patients upon more than one occasion tell me of some one who deceived them in their youth about a dental operation, frequently followed by the remark that they never liked that man since that occurrence.

If this effort has in any way increased the importance of this, one of the two basal principles in successful practice, the other being manipulative skill, I shall feel that it has been of benefit to my professional co-workers.

I cannot close without calling attention to an excellent article in the *Dental Cosmos* of February, 1899, entitled "A Few Considerations in Filling Teeth," by Dr. C. N. Johnson, which contains valuable suggestions as to the treatment of patients.

In conclusion, I will submit the following general form, which may convey a comprehensive idea of what should be considered:

Honesty of purpose.
Perfect self-control.
Suggestive control of the patient.
Short sittings.
Due consideration of the patient.
Delicacy of touch.
Rapid but careful manipulation.
Extreme caution in preventing false moves of instruments.
Keen-edged instruments.
Distinguishing between real and imaginary pain.
Appreciation of the different degrees of sensitive dentine.
The least display of instruments necessary.
Extreme cleanliness.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

A regular meeting was held April 3, 1900, with the Vice President, Dr. Geo. W. Cook, in the chair.

Dr. Garrett Newkirk, president of the society, sent an address in the form of a letter, which was read by Dr. Bentley. (See page 415.)

Dr. Geo. B. Perry then read a paper entitled "Temperaments."

DISCUSSION.

Dr. C. N. Johnson: I am very much pleased with the presentation of this paper from the fact that the essayist starts out with a broad conception of the subject, and then brings it down to a final application to the practice of dentistry. It is a paper that will be worth reading after it has been published. I must confess, however, that it is in many respects altogether too deep for me. It is one that requires study to understand it, and I do not profess to thoroughly understand it now, and the only phase of it I can discuss is that feature which relates to the management of patients from the point of view of a study of the temperaments. There is one thing that appealed to me in the paper, and that was the author's reference to the expression of emotion in animals. He referred to the expression on the dog's face. I have not studied the expression on the dog's face as much as I have that of the horse. I have a favorite mare and she is more eloquent in her expression of her emotions to me than half of the people I meet. She can interpret to me better what she means and feels than can the average individual blessed with speech. I had an illustration of that the other morning, when I went to the stable. I am in the habit of putting some lumps of sugar in my pocket when I go to the stable and the mare expects them. It happened on several occasions that I forgot the sugar, and her increasing disappointment at not receiving it called out this remark from the stable boy the other morning: "Doctor, we are not going to be able to excuse that oversight many times more," and this very thing was pictured in that mare's attitude as accurately as I have ever seen anything. To me it is exceedingly interesting to study the expression of emotions in animals as well as the expression of emotions in individuals.

I shall speak now particularly of the management of the patients that come to us as dentists and of their temperaments. It is necessary for the dentist, above all men, to be an accurate and close student of human nature. Is does not do to handle all people alike. Every individual who comes into our office and comes in contact with us in a professional way must receive certain treatment, but not like that which we give others; not that we must lose our individuality, but if we wish to accomplish what we set out to do, it is necessary for us to study the temperament and individual nature of our patients and become cognizant of them. I have the idea that the ability on the part of the practitioner of dentistry to read human nature and to manage individuals as they come to him is one of the principal elements of success in practice. How is it that such and such a man is not a success in practice? He is a good operator; he is skillful; he is a gentleman, but somehow he does not succeed. His failure is largely due to the fact that he fails to understand the temperament of the people that come to consult him professionally. He fails to discriminate between the different patients.

Speaking about managing patients, I will refer to a case that happened several years ago in which I practiced a little deception but over which I have never felt the slightest compunction of conscience. I had put in a partial plate for a lady, but there was one tooth on the plate that did not seem to suit her. She said she wanted a certain kind of tooth and described it. I suggested to her that it might be possible to change the position of the tooth on the plate so as to make it agreeable. No, she did not want this done, but desired such and such a tooth. "Well," I said, "you come in to-morrow and select the tooth that suits you best." In the meantime I sent to the depot for three or four teeth as nearly as possible like the one she described. When she came in, I took the tooth off the plate, and it occurred to me to put that tooth in with the others. This I did, and she selected that identical tooth and said, "That is the kind of tooth I have been wanting all the time." I arranged it with wax and put the same tooth back on the plate, and she was perfectly satisfied.

Finally, I want to commend the summing up of the requisites in the successful management of patients. All of the things Dr.

Perry has mentioned are true and are essential to a most successful practice. There is one other attitude to our patients which goes farther toward influencing and controlling them than any other one thing, and that is absolute honesty of conviction behind the operator. I have watched the career of different men; I have been something of a student of human nature myself, and from my experience, I am convinced that no matter how successful a man may seem to be, how brilliant he may be as an operator, etc., unless he has behind him the soul of absolute honesty his success will be limited, and it is only a matter of time when the foundations will drop out from under him in some way. Honesty is the governing factor in true success in any field of effort.

Dr. Edmund Noyes: I regret having forgotten that the paper on temperaments was assigned for this meeting, and consequently I have not prepared myself for this discussion in such a manner as was due to the society and deserved by the essayist.

I have never been in the habit of thinking of temperaments. I mean by this, that although I handle my patients as far as I am able with reference to their personal peculiarities, I do not attempt to classify them so as to think of one as sanguo-nervous, another as bilio-lymphatic, etc. I am, therefore, unable to discuss the paper from that standpoint, and the other aspects of it have been very fully and satisfactorily presented in the paper and by Dr. Johnson.

What Dr. Johnson has said in regard to the handling and management of patients individually is doubtless true. We all know that it is true. For myself I do that instinctively and by habit rather than consciously by intellectual analysis and perception of the variations in temperament of my patients. Dr. Johnson said the fundamental thing in the handling of patients is personal honesty and integrity, and I am glad to agree with him. The important element in that personal honesty and integrity is that it has reference to the best welfare of the patient. Its aspect is not toward ourselves primarily, but toward our patient, and perfect sincerity, self-control, uniform kindness, and thoroughness of care in the treatment of patients are so universally applicable to all patients and come so near to covering the ground of adaptability to all patients, that I have not been in the habit of thinking so much about the differences in personal manner and form of address and the diversified influences which must be brought to bear on different patients as perhaps I ought to have done. I try to bring myself in sympathy with each particular individual who consults me professionally and to manifest those personal characteristics which I seek to cultivate in myself and to exhibit constantly in my practice; consequently, so far as a discriminating description or different types and styles of people and the different or varying treatment which they should receive are concerned, I am unable to discuss this feature of the paper as intelligently as I would like to do.

The divisions of temperament have always seemed to me very difficult to understand. Every individual has a temperament peculiar to himself. It is only a question of how temperaments are mixed up and what degree of proportion and preponderance there may be, and the variations are so infinite that personally I get entirely lost if I ever try to sort them out. It seems to me I can spend my time and effort more usefully in other directions.

Dr. Carl Theodor Gramm: In discussing "the management of patients" I will suggest that we are fighting windmills. I never think of how I will "manage" a patient. Give me a man who is honest and clean; a man who is capable and possessed of humane instincts, and he need never bother his head about what his patients may think of him. No patient in my office will pretend to dictate requirements in dental practice any more than that same patient would suggest how my prescriptions are to be written. We are supposed to know how to best conserve our patients' interests. In order, then, to gain and retain their absolute confidence in us, we need only do our duty straight with all possible courtesy and kindness, but with firmness and independence.

Dr. C. E. Bentley: I do not think I can add anything of particular interest to this discussion. Like Dr. Johnson, I am afraid I would get into deep water if I should attempt anything like an intelligent analysis of the paper. The subject is one with which I am not familiar. It is a subject, I take it, for specialists, and I am glad we have a member who has made an effort to specialize in this direction. I was particularly impressed with the large amount of research indicated in the paper. The essayist has gone into deep scientific realms in order to get data upon which to base conclusions, and the paper is commendable for that reason. The applications of the paper are particularly commendable. Everything that has been recommended for the complete success of the individual should be incorporated in every gentleman's paraphernalia, if he desires to be a successful dentist. I do not know, but it seems to me the supreme lesson which this paper teaches is the power of self-control. I believe that if we have sufficient power to control ourselves, we will have very little trouble to control our patients. I have the greatest admiration for the individual who can control the various set of people that come to him. I utterly lack this myself, I believe. I try to act in consonance with the best promptings of my conscience when dealing with my patients. Aside from this I am a child. I do not attempt to vary my personality with every shifting wind that may come in the shape of a patient to my office. I try to impress the individual with my personality rather than try to sacrifice for the moment a portion of my individuality for him or her. That is my method, because it is easier for me to practice it, and it is a method from which I get the greatest amount of benefit.

If I am unable to impress my patients with what I conceive to be the best thing for them, other things being equal, it is because my personality fails to overpower theirs.

I should like to be the possessor of that order of tact that would enable me to fathom and master the idiosyncrasies of the various patients I meet without sacrificing my own personality. I think a study of the subject and paper under discussion would help one in this direction.

Dr. P. J. KESTER: I wish to congratulate the essayist on his paper; it shows great research. The study of temperaments and the conclusions he draws from it we can profit by. I feel repaid for having been present and listened to the paper, and personally I thank the essayist for it.

Dr. PERRY (closing the discussion): The prime object of my paper was to increase, if possible, the interest in the study of patients as they come to us for dental work. Through the temperamental conditions we can discover many peculiarities that can be readily overcome. I could not expect each man or woman in the profession to study the temperaments in detail as I have given them. My idea was to incorporate a sufficient amount of evidence from the scientists, who are authorities on the subject, to interest you and assist in overcoming many of the difficulties which are presented in daily practice. To me temperament and personality are synonymous, practically one and the same thing in a general and broad sense. Binary temperaments are always present. Within my limited knowledge I never have seen a case of individual temperament. By that I mean a person with a distinctly lymphatic, bilious, sanguine or nervous temperament, but the predominating factor is present with one or more of the compound elements. Temperaments are well studied at revival meetings. You can see the effect of personal magnetism when a man talks in a fluent, enthusiastic way, and deeply impresses his hearers, which, in many instances, is not clearly understood. He is voluble; his ideas come to him rapidly, but no particular effort is made by his hearers to analyze them, and the one great object he is working for is usually attained. I know a man who used to sell diamonds in New Jersey for an evangelist. I mention this in connection with temperaments because it is a rather peculiar incident, and I got my information direct from that person. The evangelist went from town to town exhorting people to communicate with God. He had a daughter who accompanied and assisted him. He would get up at revival meetings and urge the people to pray for what they wanted and their prayers would be answered. After describing the things that had happened in various meetings and getting their attention well in hand, he would say, "We ought to feel interested in the work of the Lord. What can we do to help the cause?" His daughter would immediately spring up, tear the rings from her fingers, remove other jewelry from her person, and throw them into a hat or plate being passed. Others in the audience would do the same thing, and then the father and daughter would pocket the proceeds from the sale of them. I do not mention this as a slur upon revival meetings, but simply to illustrate one form of personality.

At the present time there is a great religious movement going on known as Christian Science, its followers being numbered by the thousands. It is a subject which seems to interest the people by suggestion and the influence it wields is a powerful one. Nothing is impossible for them to accomplish according to their statements, many of which seem to me beyond verification. I can readily understand that mind has control over matter in a large degree but cannot accept the theory of non-existence of matter, as that would be antagonistic to natural laws. It is really wonderful to see the effect produced upon people in Christian Science meetings. They are held spellbound, as it were, there being no question of any marked difference in ideas apparently; all the testimony given is in one direction. Nothing seems to change the current of thought in regard to it, but reminds one of a hypnotic influence.

I knew of a little boy in Boston who had some trouble with his throat. He was taken to a specialist, who handled him in a rough manner. The boy was only three years of age at the time, but it made such an impression upon him that he was actually afraid of his father because he was a man, and this boy grew up with a natural aversion to men until he was six years old and realized the distinction between them.

At the Southern Hospital for the Insane in Illinois, some years ago, the physician in charge, whose name I cannot recall, was a high Mason, and it occurred to him one day to ascertain the number of inmates who were Masons, and found out in a general way. He gave them signs which would call for return signs. It was found that twenty-five per cent of the twenty-two hundred inmates in that institution were Masons, and there was not one of them in that demented condition who would give a return sign or in any way expose Masonry.

Dr. Noyes spoke of studying patients and caring for them individually as they presented themselves. That is my idea exactly. But no general rule can be laid down except such as have been suggested.

Dr. C. N. Johnson mentioned the cardinal principle of successful practice in dentistry, namely, that we have to study each individual case as it comes up to get an insight into the person's characteristics at that time, the temperament he presents, etc. The ability to interpret one's personality is of great benefit to the dentist in the treatment of his patients.

I am indebted to Dr. Edmund Noyes, Dr. C. N. Johnson, Dr. H. J. Goslee and Dr. J. H. Woolley, who were kind enough to loan me and suggest works that assisted me in the preparation of this paper.

I do not agree with Dr. Gramm in regard to the management of patients. I believe there are few men in this room who have not had a patient at some time come to him and suggest what ought to be done in his case; but with a little tact one can overrule the suggestions of such patients, and one of the best methods of doing this is by giving them illustrations. If you have a few casts of cases which you have treated successfully, show them the results. Such illustrations will impress them more deeply than a technical description. I keep a few casts on hand, and when a patient makes suggestions, or asks questions, I find something among them which will approximate his case, so that he understands in a reasonable way what he may expect and what I hope to accomplish. The dentist should project his personality in such a manner that the patient will feel the benefit of it, and it is not necessary for him to yield his individuality one iota, but educate the patient that he may have a more comprehensive idea of the work before him. It does not lessen his confidence in your ability; on the contrary, it increases his interest in you and the result to be accomplished. I am much pleased at the discussion of this paper, and wish to thank the gentlemen who opened it in so able a manner.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

647,557. Dental combination tool, Henry L. Cruttenden, Northfield, Minn.

647,574. Dental dam holder, Samuel M. Myers, Cleburne, Texas.

647,865. Artificial tooth, Alfred Page, assignor to the Standard Manufacturing Company, Philadelphia, Pa.

647,736. Dental handpiece, John W. Wilkins, assignor to Dental Protective Supply Company of the United States, Chicago, Ill.

648,242. Sterilizer for dental or surgical instruments, James A. Cronkhite, Los Angeles, Cal.

648,196. Dental matrix holder, Wm. P. Dickinson, Minneapolis, Minn., assignor to J. W. Ivory, Philadelphia, Pa.

647,956. Dental tool, Nelson R. Ford, New York, N. Y.

648,106. Dental engine, Harry W. Heinz, Pittsburg, Pa.

32,617. Design, dental crown-driver, Clare S. Bradley, Beloit, Wis.

649,234. Dental tool holder, Angelo Chiavaro, Catania, Sicily.

649,336. Dental chair, Jesse W. McConnell, Cornelia, Ga.

649,178. Top for tooth powder receptacles, Frederick Richardson, Providence, R. I.

LABELS.

7,509. "Listerlated Tooth Powder" for a tooth powder, Frederick B. Horton, Manchester, Conn.

7,510. "Listerlate Tooth Powder" for a tooth powder, Frederick B. Horton, Manchester, Conn.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

THE NATIONAL DENTAL ASSOCIATION.

The above association will convene at Old Point Comfort, July 10, 1900. The meetings will be held at the Hotel Chamberlain, and will continue four days. On account of the death of the recording secretary, Dr. Geo. H. Cushing, that work will have to be done by the efficient assistant secretary, Dr. A. H. Peck, whose experience in other societies so well fits him for that work.

THE INTERNATIONAL DENTAL CONGRESS.

Up to this date all is serene and it looks well for a large attendance from the United States and Canada. About two hundred of the profession will be in Paris attending the meetings and reading papers. There will be no hitch in the opening or in carrying out the program. Those who have not made arrangements for board and lodging should write to the American Dental Club, Geo. A. Roussel, secretary, 74 Boulevard Haussman, Paris, and secure quarters at once.

PLAIN SPEECH.

Nothing can persuade the writer to indulge in such delicate and flattering language as is used by the butcher who wields the pen for the editor of the *Dental Digest.* We repeat it once more that the language and insinuations of that sheet are too contemptible for notice and we will be surprised if the profession will put up with it much longer. Such asininity would not and should not be tolerated by the intelligent and respectable dentist. The editor of this journal edits it for the good of the whole profession—has nothing for sale directly or indirectly—and has no more interest in the Tooth Crown Co. than the *Dental Digest*, and never did have; and still because we gave a hearing to a member of the profession in New Jersey the *Digest* persists in saying that *it is* the only simon pure brand of honesty and professional probity. Such action on the part of the editor of that journal may tickle him when he sees his lucubrations in print but they savor of vulgarity, egotistical hysteria and downright maliciousness to such a degree that we are content to let the profession be the judge—rather than advertise ourselves as a much injured individual. If we were an "organ" and "tested" every batch of alloy sent out by a supply house and then tried to run all dental societies and hung on to office as the editor does, we would feel like we were somebody, but we are only practicing dentistry and of course do not know how it feels to be a "pooh-bah" and a self-elected dictator in ordinary to the whole profession. Now that another month will not intervene between the appearance of this issue of the DENTAL REVIEW and the next meeting of the National Dental Association, we trust that the reader will bear up bravely and not think because we are going to Paris that we will not be able to take care of such inconsequential rubbish as is ground out by the organ-grinder of the *Digest.*

THE DENTAL PROTECTIVE ASSOCIATION.

This organization for many years has been in litigation with the International Tooth Crown Co. and until recently has been successful in resisting the efforts of the Tooth Crown Co. to collect royalty for constructing crowns and bridges. By a recent decision (International Tooth Crown Co. *vs.* Kyle) it appears that the Crown Co. is now engaged in trying to collect for arrears in bridge work. The proceedings so far have only appeared in the Eastern States but it will not be long before the Western States will be invaded. It is impossible at this time to state the exact status of the litigation other than to say that the members of the profession are promised protection if they are sued for infringement. The practice of trying these cases in the papers is not to be commended—not even before dental societies—as the courts are the authoritative bodies in this sort of litigation. It is hoped that there will soon be an end to this fight, as it is a menace to the peace of mind of every dentist. If any member of the profession has anything in the shape of valuable evidence to defeat the patent now is the time to bring it out. It is very plain to an impartial observer that what is needed now is coolness and judgment rather than intemperate utterances on the part of the manager of the association. The Dental Protective Asssociation was not founded for the abuse of individuals or corporations doing a legitimate business, but to fight the crown and bridge patents, and if the dental public believes in altruism it will do well to read the early circulars and pamphlets issued years ago. If some of the energy displayed in breaking up the interest in society meetings was reserved for legitimate fighting purposes against our common enemy things would not be as they are now. No amount of "hot air" emitted from the fiery furnace of wounded pride on the part of the "official organ" should blind us to the facts—which are that the whole profession is menaced with lawsuits galore and no wise counselor at the helm. What are we going to do about it? Well, the first thing is to get a muzzle and keep the president of the association still. Get someone to suppress all such intemperate and scare utterances as the one on page 383 of the May issue of the *Dental Digest.* This is a time for sober thought, not for hysterical yelping about one's sacred person. If the interests of the profession are not being watched properly, it is bigger than any individual and the work can be done by others, perhaps better than it has been done in the past. Honest criticisms do no harm to any public personage, and we believe from what we have seen and heard that a crisis is impending which the Protective Association must meet without wasting its resources and energy on trivial outside matters.

DENTAL COLLEGE COMMENCEMENTS.

DEPARTMENT OF DENTAL SURGERY, DETROIT COLLEGE OF MEDICINE.

GRADUATING CLASS.—L. G. Banghart, A. Bentson, G. G. Brown, C. S. Brown, J. J. Brownlee, P. C. Bruner, H. Charbonneau, G. L. Cole, J. J. Crawford, H. P. Czishke, H. H. Dudley, J. L. Gibson, J. R. Kirkwood, O. J. Lasenby, A. A. Lauppe, E. R. Lee, W. Mann, C. M. McArthur, W. H. McCormick, J. F. McQueen, V. H. L. Newell, J. Norris, W. J. Penman, A. M. Ritchie, T. W. Robson, G. A. Stark, F. W. Stellwagen, C. F. Stewart, G. C. Wallace, J. A. Walker, N. K. Walter, W. Wigle, F. Whitney, E. Young.

COLLEGE OF DENTISTRY, UNIVERSITY OF CALIFORNIA.

GRADUATING CLASS.—Frank Wilson Anderson, Walter Pike Austin, Gottfrid Bergstrom, Julien Rex Bernheim, Daniel Edward Blackburn, Edward James Broad, Paul Milton Burns, Eduardo Caceres, Thomas Meritt Carmichael, George Harry Casaday, Daniel Henry Cockerton, Philip Stephen Cummings, Alice May Davis, Joseph Horace Doyle, Hubert Crees Eller, Charles Edward Farman, John Howard Finley, John William Ginno, Arthur Earl Hackett, James Lafayette Halsted, Charles Sumner Hardy, Joseph M. F. Hocker, Francois Louis Marium Hus, Anna Dorothea Joost, David Harrison Leppo, Albert Francis Lucchetti, Frank Michael Madden, Herbert Stanhope Meyer, John Milton McClish, Christopher John Morgan, Edna Eulton J. Moore, Alvah Nevada Morgan, Totaro Hiroshi Ohhara, Daniel Augustus Ostrom, Jr., George Hudson Phillips, Henry J. Phillips, Wallace Wall Reading, Frederick Joseph Rulison, John Hartley Scott, Henry Charles Soher, John Christopher Somersett, Marion Laurence Tobriner, William Merrill Tryon, Frank Vaughan, Eugene George Woolsey.

UNIVERSITY OF CALIFORNIA, DENTAL DEPARTMENT, SAN FRANCISCO, CALIFORNIA.

The graduating exercises for the session of 1899-1900 were held in connection with the other departments of the university May 16, 1900.

The address to the graduates was delivered by the president of the university, Benjamin Ide Wheeler, Ph. D.

The number of matriculates for this session was 145, and the number of graduates 45, as follows:

Anderson, Frank Wilson, Santa Rosa; Austin, Walter Pike, Santa Cruz, Cal.; Bergstrom, Gottfrid, Engelholn, Swd'n; Bernheim, Julien Rex, Santa Cruz, Cal.; Blackburn, Daniel Edward, Paso Robles, Cal.; Broad, Edward James, San Francisco, Cal.; Burns, Paul Milton, San Jose, Cal.; Cancers, Edwardo, Guatemala, C. A.; Carmichael, Thos. Merritt, San Jose, Cal.; Casaday, Geo. Harry, Watsonville, Cal.; Cockerton, Daniel Henry, Oakland, Cal.; Cummings, Philip Stephen, Berkeley, Cal.; Doyle, Joseph Horace, Redwood City, Cal.; Davis, Miss Alice May, Salem, Ore.; Eller, Hubert Crees, Etna Mills, Cal.; Farman, Chas. Edward, Berkeley, Cal.; Finley, John Howard, Modesto, Cal.; Ginno, John William, Woolwich, Eng.; Halsted, James

La Fayette, Jr., San Francisco, Cal.; Hackett, Arthur Earl, San Francisco, Cal; Hardy, Chas. Summer, Oakland, Cal.; Hocker, Jas. Michael Francis, San Francisco, Cal.; Hus, Francois Louis, Oakland, Cal.; Joost, Miss Anna Dorothea, San Francisco, Cal.; Leppo, David Harrison, Santa Rosa, Cal.; Lucchetti, Albert Francis, San Francisco, Cal; Madden, Frank Michael, San Jose, Cal.; Meyer, Herbert Stanhope, San Francisco, Cal.; McClish, John Milton, Healdsburg, Cal.; Morgan, Christopher John, San Francisco, Cal.; Moore, Miss Edna Fulton J., Marysville, Cal.; Morgan, Alvah Nevada, Nevada City, Cal.; Ohhara, Totaro Hitoshi, Japan; Ostrom, Daniel Augustus, Jr., Marysville, Cal.; Phillips, Geo. Hudson, Hanford, Cal.; Phillips, Henry J., Petaluma, Cal.; Reading, Wallace Wall, San Francisco, Cal.; Rulison, Fredrick Joseph, Reno, Nev.; Scott, John Hartley, Sacramento, Cal.; Soher, Henry Chas., San Francisco, Cal.; Somersett, John Christopher, San Francisco, Cal.; Tobriner, Marion Laurence, San Francisco, Cal.; Tryon, William Merrill, Sacramento, Cal.; Vaughan, Frank, Pendleton, Ore.; White, Chapman M., Jr., Chico, Cal.; Woolsey, Eugene George, Ione, Cal.

OHIO COLLEGE OF DENTAL SURGERY.

Fifty-fourth annual commencement of the Ohio College of Dental Surgery, Department of Dentistry, University of Cincinnati, at the Odeon, Thursday, May 10, 1900, at 8 o'clock P. M.

GRADUATING CLASS.—Earl J. Allen, Dayton, Ohio; Thomas Albert Anderson, Erlanger, Ky.; Josiah W. Autenrieth, Andrews, Ind.; William Bailie, Newport, Ky.; Edward Ellsworth Bartram, Greenup, Ky.; George Samuel Blanchard, College Hill, Ohio; Harry Calvin Brown, Cincinnati, Ohio; John Alvin Brumfield, Haubstadt, Ind.; Harry Guy Butcher, Urbana, Ohio; Admiral Franklin Campbell, Leavenworth, Ind.; Ezra J. Cassell, Kinsey, Ohio; Warren Martin Clawson, Springboro, Pa.; A. Thurman Cole, Ellwood City, Pa.; William James Cooke, Alliance, Ohio; Archibald John Crawford, Duart, Ont., Can.; Carl Franklin Crecelius, Marengo, Ind.; Perry Nelson Crittenden, Jackson, Mich.; Joseph Allen Dodson, Maysville, Ky.; James Howard Eagleson, Calhoun, Ill.; Harry Eastman, Maineville, Ohio; Orville John Fetter, Owensville, Ohio; Robert C. Graham, Chattanooga, Tenn.; Elmer James Hamilton, Greensburg, Ind.; Charles Russell Hammat, Rex, West Va.; William Rowan Hardin, Eureka, Ill.; Zeno Wilber Heizer, Georgetown, Ohio; Roy Washington Hellwarth, Celina, Ohio; J. Homer Huschart, Cincinnati, Ohio; Frank Clayton Iams, Pittsburg, Pa.; Charles Edwin Isaac, London, Ont., Can.; Charles G. Kelly, Pittsfield, Ill.; Edward Jonas Kilian, Huntingburg, Ind.; Herbert Baxter Loper, Fairfield, Ind.; Neil Peter MacDermid, Paisley, Ont., Can.; Horton Jerome Maxwell, Carleton, Mich.; William Durrel McCarty, Cincinnati, Ohio; Arthur Collier McCormick, Stout, Ohio; James R. McCormick, Red Oak, Ohio; Hartley Updegraff McCurdy, Hutchinson, Kan.; Clarence Nash Miles, Gallipolis, Ohio; John Dutton Nelson, Nunda, N. Y.; Fred Mitchum Owens, St. Paul, Minn.; David Marshall Patton, Cincinnati, Ohio; Galen Cline Perin, Madisonville, Ohio; Adrian Clarence Pfouts, Wilmot, Ohio; Miss Edith Sayler, Cincinnati, Ohio; Hugh E. Schellenger, Jackson, Ohio; Carl C. Schenck, Franklin, Ohio; Walter Henry Scherer, Newport, Ky.; Walter H. Siegfried, Springboro, Ohio; William A. Shea, Sterling, Ont., Can.; Percy Shinneman, Garden City, Kan.; Cary Marshall Snowberger, Angola, Ind.; Harley George Spitler, Dayton, Ohio; Harry Watson Steen, Ripley, Ohio; Frank E. Taffner, Hillsdale, Mich.; Bayard Rutlage Taylor, West Jefferson, Ohio; Hugh Benjamin Thomas, Frankfort, Ind.; Carl Edmond Uhle, Attica, Ohio; Elmer G. Weisenburger, Defiance, Ohio; Jesse A. Woofter Weston, W. Va.; Harry Lee Wright, Troy, Ind.

DOMESTIC CORRESPONDENCE.

Letter from New York.

To the Editor of Dental Review.

Dear Sir:—This month closes all our local society work. The State society gatherings were ushered in by the "assemblying of guards" at Albany on May 9 and 10 upon the occasion of the Dental Society of the State of New York's thirty-second annual meeting. The elements were propitious for a good representation of the eight district societies turning out strong, but they came not. There were only about seventy, although the general number in attendance is in the neighborhood of one hundred and fifty. No one seemed able to explain the discrepancy.

A new meeting hall was chosen again this year, which for acoustic properties and comfort far exceeded previous meeting places. Centennial Hall has all the appearance of a small theater, even to the general equipments, seats arranged in tiers on the gallery plan. No exhibitors had space in the meeting room, but were well upstairs, where they could ply their trade without intermission or interruption to their own satisfaction and the comfort of those desiring to become interested in the society proceedings.

The first order of business was the reading of the President's address by that gentleman (F. LeGrand Ames).

In a very few minutes we learned that he believed in removing the barriers to permanent membership in the society and was advocating the " open door " policy. The present constitution of the society provides for the admission of only five members each year. It is a question whether the full number presents in any one year. Some years they do not, I am certain.

Dr. Ames eulogized Dr. Crouse's Dental Protective Society work and said we should silence forever every calumny and slur cast upon this man by people with evil intent.

He also gave the history of the bill looking to the appointment of dental surgeons in the army, and recommended that the National Dental Association be instructed to introduce measures for the appointment of the three members of examining board for army and navy dental surgeons, to relieve Adjutant General Corbin of that responsibility, they to be chosen one each from the East, the South and the West.

The treasurer (Dr. Stainton) gave a tabulated report of dental society membership, dues, fees, etc., from each State, which is a valuable piece of work and will bear serious consideration by all dental societies. It shows our State society in a precarious condition, with much reform necessary before it will become healthy.

The report of the law committee showed that there are still a number of crooks who are attempting to evade the law, and one even attempting to tamper with the legislature to attain his desires, by making such enactment as will allow him to practice in the State.

There was also a committee report favoring the Pan-American Dental Congress at Buffalo in 1901.

" Porcelain as a Beneficial Art in Dentistry" was the title of the first paper read. Fred J. Capon, D. D. S., M. D. S., L. D. S., of Toronto, Canada, was the essayist, and a smart paper it was, too.

He described the several furnaces—coke, oil, gas, electricity—that have been used for fusing porcelain. He has them all, but prefers the oil system to any of them. Could best dispense with the electrical.

Considers low fusing porcelains useless, because they contain such large quantity of glass. Porcelain is like dough; it can be overbaked.

He made a strong plea for the jacket crown on account of its strength and the good results obtainable.

Joseph Head, D. D. S., of Philadelphia, Pa., followed Dr. Capon, with a paper entitled the " Philosophy of Cemented Inlays." He defined the attributes of the ideal filling, considering all those which we use, such as cohesive gold, soft gold, tin, amalgam, oxyphosphate, chloride of zinc, gutta-percha and porcelain inlays, their resistance to mastication, to action of secretions, their color, powers to prevent decay, etc. etc., all portrayed on a large chart, which was an excellent method for keeping the subject always in view.

Both Dr. Capon's and Dr. Head's papers were discussed freely. Some took exception to the general reference to the poor qualities of most filling material.

There were a number of other papers, some of which were read by title, because of poor management of the presiding officer.

The election of officers resulted in placing Dr. John I. Hart, of New York, as President; Dr. R. H. Hofheinz, of Rochester, as Vice President; Dr. W. A. White, of Phelps, as Secretary; Dr. C. W. Stainton, of Buffalo, as Treasurer; Dr. H. D. Hatch, of New York, as Correspondent. Dr. Wm. Carr was elected a member of Law Committee; Dr. W. C. Deane was elected on Legislative Committee.

On May 17, at the office of Dr. E. A. Bogue, the New York Institute of Stomatology held an informal meeting.

Dr. Kasson C. Gibson exhibited and explained some models, charts and photographs of a case of protrusion of the upper jaw, jumping the bite, cases favorable and unfavorable for staphylorrhaphy, syphilis acquired and perforation of the hard palate.

There was not great discussion elicited except in the case of jumping the bite. Dr. Gibsons' contention was that it could not be done. He very nearly lost his patience with Dr. LeRoy, who took issue with him again as he did at the meeting earlier in the year of the Odontological Society, by insisting that it can be done.

These afternoon meetings start at five o'clock. They are very enjoyable affairs, especially the dinner arrangement which follows adjournment and insures a short session of the proceedings of the society.

June meeting of the Institute of Stomatology was held at the office of Dr. James B. Locherty, 136 West Forty-eighth Street, Manhattan, on Tuesday evening, the 5th inst. As this was the last meeting of the season, a good attendance was had. For some reason no one had anything to offer under the head of "Incidents of Office Practice," consequently the essayists of the evening had everything their own way.

Dr. Charles Allan, of Newburg, N. Y., was the first one on the list. His subject was "Porcelain Inlays," or, rather he was to, and did, "Speak of his impressions of porcelain inlays as designed and inserted by Dr. Jenkins, of Dresden."

While in Dresden some time since for two or three weeks he was a constant visitor to Dr. Jenkins' office; saw him at this work under varying conditions and at all hours, and had some evidence of Dr. Jenkins' care and skill shown in his own mouth. He could not speak too highly of Dr. Jenkins' thorough knowledge of his work, his affability, his expeditiousness and the unvarying good results of his labors. First, referring to the fact that the majority of dentists in this country who have looked into the matter of porcelain inlays with much care seem agreed that, except for looks, in the six anterior teeth gold is still much to be preferred, he proceeded to show to at least his satisfaction that in the hands of experts porcelain was destined to be superior to gold, even for masticating surfaces. Its use, he claims, is not an exception, but the rule. He claims that Jenkins' low-fusing body is as strong as any high-fusing body. Probably one point he made is in favor of Jenkins' body, viz., that pure gold can be adapted to a cavity with a greater degree of accuracy than can platina; and, further, should it be punctured in adaptation, a small piece of gold can be annealed and placed over the puncture, and will cohere, effectually closing the hole. He emphasized the rapidity with which Dr. Jenkins performed his operations. In the case in his own mouth, which was a mesio approximal cavity in the right superior lateral, the work was all completed in *less* than three-quarters of an hour. Regarding the preparation of the cavities, there seems to be less attention paid to the shape of the cavity than we had supposed. Almost no attempt is made at parallelism, even to the extent of leaving some cavities almost saucer-shaped. But a great deal of care *is* given to the *edge* of the cavity. That is sharp and clear and smooth. He spoke of Dr. Jenkins having lots of Arkansas stones or points mounted on mandrils, which he used in the finishing of the edges. Then having the inlay well adapted, the amount of cement needed is so very little that the joint is scarcely to be found. He did not mention what cement our friends in Germany use. He emphasized the fact that Dr. Jenkins does *not* put a stone to the inlay after its last fusing, but seems to have the happy faculty of always getting just the proper contour under all circumstances. We did not comprehend, however, how he does this when making an inlay for an approxmal cavity in a molar which includes a portion of the grinding surface, things which Dr. Jenkins does every day—sometimes several times a day. Probably Dr. Allan's answer to a query later on regarding grinding the inlays would apply, viz.: "Well, hardly ever!"

Dr. Allan is a very fluent speaker, and his description of Dr. Jenkins' methods was extremely entertaining and instructive. The discussion, participated in by Drs. Wardwell, Donns, Pratt, F. Milton Smith, Geo. S. Allan and E. A. Bogue, brought out these things: The dam was not always used, many apparently difficult cavities being completed without its use. The gauge of gold used is 30. There would usually be from three to four bakings, and the question of shadow did not seem to be of much moment.

Dr. F. Milton Smith emphasized the fact that whether difficult or not, we American dentists should do the work well.

Dr. Geo. S. Allan was positive that good results could be obtained only by one's doing all the work himself; that it would not do to rely upon work from impressions, etc., in the laboratory.

Dr. Charles Kimball then read a paper, "The Dentist and his Associate."

We cannot do justice to Dr. Kimball's paper. It was concise and well written, treating of the characteristics the associate should have, and the relations which should exist between principal and associate. We cannot do better than advise all those who are interested in such matters, which are of necessity elevating in their character, to read the paper when published, as it will be in the "International," which publishes the proceedings of the Institute.

It was not a paper which could be discussed except to laud those portions with which all agreed.

Fraternally,

"The Boroughs."

Letter from Dr. Newkirk.

Los Angeles, Cal., May 30, 1900.

To the Friends of Dr. Cushing in Chicago:

About two weeks ago I made a visit to our dear old friend at his office in the infirmary of the Dental College of the Southern California University. He was looking better, it seemed to me than I had seen him for several years. He received me in the most cordial manner, and appeared to be quite cheerful and happy; in fact, he was rather jolly, showing his old time disposition to joke and make merry. We spoke of the State society, and our regrets at not being with it this year. I asked him if he should attend the National meeting, and he replied, "No, it is too long and tiresome a journey; they'll have to get along without me this year." As I was leaving he introduced me to his young lady bookkeeper, with some amusing remarks, rather at my expense. A cheery "good-bye" and "come again" closed my last visit to Dr. Cushing.

My way to the train took me by the infirmary, though usually after the doctor had gone; but it happened that twice afterward I went early, and met him on the street; but we had time only for a hand shake and a word. The last time was on Monday afternoon, May 21, about 4 o'clock. We scarcely paused, grasping our left hands in passing, with a word of greeting, for I was hastening to my train; and now I ask myself, ought one ever to be in a hurry when he meets an old friend? Little did I think that should be my last glimpse of the kindly face of "Uncle" George. As I afterward heard, he was then on his way to see Dr. Cole, for he had not felt well all day. By the time he reached home he was quite ill, and took to his bed. During the following three days, Tuesday, Wednesday and Thursday, he had fever and was frequently delirious. Several times he had also severe pain, from heart spasm probably, so that the local physician felt compelled to give him morphia, hypodermically, in large doses. On Friday morning, May 25, he seemed much better, was rational, apparently free from pain, and sat up in bed and ate a very good breakfast. Then suddenly, about a half an hour afterward, he had collapse, was seized with convulsions, passed into coma, and died at 11 o'clock, aged seventy-one years.

Excepting Dr. Cole, who was called in consultation, during all this time no one in Los Angeles knew that Dr. Cushing was dangerously ill. The first intimation I had of his sickness came with the announcement of his death, on Friday, about noon; a telephone message from Dr. Ford, who said he had already sent a dispatch to Dr. Brophy. As soon as possible I drove out, accompanied by the dean of the college, Dr. Palmer.

We found that the undertaker had been there and performed his offices. The funeral was to be from the house on Sunday, and strictly private. The remains were to be taken to Rosedale

Cemetery, cremated, and the ashes forwarded to Chicago for burial in the family lot at Graceland. It had been Dr. Cushing's will that cremation should be given to his body.

Mrs. Cushing did not feel equal to going through a public funeral down town.

The students at the college had raised a sum for flowers, and this, we believe, is to be used now for a portrait of the doctor, to be placed in the infirmary—which is, after all, perhaps better.

The routine of Dr. Cushing's life here was about as follows: He lived with his family on a small ranch out near the foothills of the Sierra Madre mountains, some seven miles distant. The place is fully one and one-half miles from the Hollywood line, and the cars run but once an hour. One of the family, usually Mrs. Cushing I think, took him from home in a buggy to the car each morning, and went for him about 5:15 in the afternoon.

The infirmary is located on the third floor of the building, corner of Spring and Main Sts., and unfortunately there is no elevator; so there were two long flights of stairs, fifty-seven steps in all, which Dr. Cushing had to climb twice a day—for he went out at twelve o'clock for a light lunch. I asked him once if he knew how many steps there were; he said, "No, but there are a lot more than I like to climb."

These daily climbs were not only wearying to him, but involved, no doubt, considerable strain upon the heart, which, as shown by the autopsy, was in a weak condition. I believe he realized this and had a continual feeling that his tenure of life was very uncertain; yet he was so happy in having employment, in the consciousness of being still of use in the world, and of being able to obtain the comforts of life for his family, that he bore every hardship bravely and without complaint.

I cannot tell you what a shock the news of his death was to me, nor what a sense of personal loss and loneliness has come over me here in this strange land. To my individual loss there is added a keen, sympathetic sense of the loss to the profession. Somehow, the individuality of "Uncle" George impressed me—impressed us all, I think—in a distinct and peculiar way. We knew he was perfectly genuine, true and faithful as the sun in his course. If by reason of his extreme positiveness, or because of the trials to which he was subjected, he sometimes crossed us, we never minded it, for we knew that deep down in his heart he was all right. My tears blind me as I write, for I know that a great loss has come to my life that can never be made up in this world.

Sincerely yours,
GARRETT NEWKIRK.

SOME SPECIAL ASPECTS OF PROFESSIONAL ETHICS.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—Some recent occurrences cause thoughtful men to wonder whether we, as dentists, are of right entitled to any consideration as members of a profession. Certainly we are not, unless we show the possession of some professional spirit and give proof to the world that we purpose observing at least the outward forms of professional decency. If men who can claim to be in some sense representative dentists can with impunity outrage the common proprieties of professional life; if instances of the total lack of professional pride of character are to be multiplied with impunity; if our professional journals are to maintain none of the dignity that all agree must form a part of respectable professional character; if coarse, boorish, uneducated men are to occupy places that entitle foreigners and the laity to point them out as types of American dentists, then let the rest of us hide our heads in shame and withdraw all pretensions to anything like professional status.

During our past history it has too often been the case that certain men, who are with us but not of us, men who seem to have no conception of true professional feeling, who glory in their lack of professional affiliation, and who probably are of those who believe that dentistry is a thing of itself and has properly no affiliation with a real profession, have shown to the world their possession of the basest trade jealousies without apparently any attempt to cloak them. Personal ends alone have been too often sought, and when opposition to selfish greed has been manifested, coarse abuse and vile epithets are made to take the place of the argument and logic which only could convince. The motives of honorable men are impugned and the basest considerations are charged as stimulating others to actions which are not necessarily discreditable. The coarsest vilification and insult are indulged in on the part of men who occupy responsible positions toward those who simply differ from them on debatable matters of public policy.

A notable instance of this may be found in a late editorial in the *Dental Digest.* Certain dentists had for reasons that to them seemed sufficient seen fit to settle with the Tooth Crown Company. In an editorial the editor of the *Digest* very bitterly attacked them, calling them "traitors," and accusing them of having sold out their brethren. The editorial was utterly indefensible, for it was a personal attack, and it contained charges that affected the personal honor of honorable men, or those who up to that time were considered such. It was an instance of bad journalism and unprofessional and ungentlemanly conduct. It tended toward the degradation of our profession, and as such it was unworthy its author. The dentist chiefly implicated wrote an answer and sent it to the *Digest*, but it was refused publication, and so these men were left pilloried, with no opportunity to defend their motives in the journal which had impugned them. Common fairness, it would appear, should have prompted the publication of the answer to a bitter attack, for the editor would, of course, have been able to answer anything which it contained in his own journal.

Upon the refusal of space in the *Digest*, the writer appealed to the editors of other journals, and offered a communication that was temperate in its expression, but which plainly reviewed the situation and pointed out the inconsistencies of the manager of the Dental Protective Association, as viewed from the author's standpoint. The writer plainly stated that it was offered to other editors because he had been denied a hearing in the *Digest.* What fair-minded man would have denied him this privilege, so long as he did not transgress the boundaries of decent debate and signed his own name to his communication? It was accepted by several editors and published. Instead of answering the arguments adduced and candidly considering the situation, the editor of the *Digest* published a tirade of vituperation and abuse that is a public and professional scandal. The commonest decencies of professional journalism and professional life were violated in the grossest manner. The vilest epithets were indulged in and the article would have been unworthy Dickens' imaginary "Eatanswill Gazette."

THE DENTAL REVIEW, one of these journals, pursued the only proper and dignified course by pointedly refusing to make any answer to such an indecent article. It appears as if it were time for the whole profession to arise and in no unmistakable terms denounce such unmitigated blackguardism. The very good name of dentistry demands that our professional journals should keep within the bounds of decency. They are supposed to represent our general professional tone and culture. When one of them admits to its pages, and even editorially indulges in the lowest billingsgate, it is time it were sternly called to account. It has misrepresented the profession of America and held it up to the derision and scorn of the profession in foreign countries, and caused the blush of shame to rise to the brows of American dentists abroad as well as at home. We are not the boors which such an exhibition would indicate, and the dentists of America are not ignorant or regardless of the common decencies of life. The *Dental Digest* owes an humble apology to every decent dentist for its misrepresentation of our professional status, and this should be exacted or its editor should be deprived of professional recognition.

I am glad to be able to say that as a whole our journals, while bright and crisp, are usually models of journalistic deportment. And yet there is a lesson in this episode that may serve as a warning to all. We are too apt to spread before the world matters that are personal and to indulge in the "tu quoque" argument. There is a deal of personal gossip that has no place in decent journalism. Such weekly newspaper, four-corners items as occasionally are seen in professedly professional journals are unworthy our literature, and mark either the inexperience or the incapacity of the country editor. Personal mention has no place in a decently dignified journalism, save in the consideration of broad principles and the enunciation of scientific deductions or opinions. Old woman gossip and constant mention of personal affairs are on the level with the "monster pumpkin" notes of some weekly country newspaper. They have no place in that which should rise to the plane of the "literature" of a profession. There are few dental journals which might not be improved in this respect. We have those which are decently dignified on almost all occasions, but even some of these occasionally indulge in that which is little if any better than vile professional scandal. The *Digest* is not the only one which occasionally attacks the motives of professional men without warrant. It is sincerely to be hoped that we shall in the near future witness a higher tone of professional journalism. AN ADVOCATE OF DECENCY.

REVIEWS AND ABSTRACTS.

TRANSACTIONS OF THE NATIONAL DENTAL ASSOCIATION, AUGUST, 1899, AND THE SOUTHERN DENTAL ASSOCIATION, BRANCH OF THE NATIONAL DENTAL ASSOCIATION, FEBRUARY, 1899.

The proceedings of the third annual session of the National Dental Association are at hand. The editing of the edition shows a master hand and its compilation and workmanship are a piece of art, worthy a prominent place in any dentist's library. Including the proceedings of the southern branch of the association it contains 717 pages, neatly printed on half-tone paper. The character of the papers presented to the association were of the highest order. Possibly it is not too much to say that as a whole it represented the highest touch of scientific research of which the National Dental Association can boast. It surely must have been gratifying to the Program Committee.

While there was not a dull paper presented, each representing considerable thought and work, and some research, some are deserving of especial mention. "Porcelain Enamel Inlays," by N. S. Jenkins, of Dresden, was an interesting innovation. The author claimed much for his method and many added testimony to the excellence of his work while a few doubting Thomases shook their heads and preferred to "bear the ills they have than fly to others they know not of." We will see.

In point of testimony from the records of forty years of practice and scientific deductions and discussion, Dr. G. V. Black's paper on "Susceptibility and Immunity" was one of the most interesting of the congress. Much of the talk that has been heard and read in societies and journals regarding the unsoundness of Dr. Black's theories with reference to the dependency of caries upon the quality of the teeth and their structure was conspicuous for its absence. The practical paper of the session and one which elicited considerable discussion was "The Management of Children's Teeth," by Dr. C. N. Johnson. If this monograph could be placed in the hands of every dentist and read by him it would be of inestimable service to the profession.

The profession is indebted to Dr. A. W. Harlan for his paper, "Recent Advances in Therapeutics." The quotations of A. C. Crofton, M. D., on "Uric Acid Theories," with its reference to inhalation of oxygen gas for the elimination of the poisonous products of alloxuric bases is of especial interest to that class of investigators who are following the theory of uric acid as a cause of so-called pyorrhea alveolaris. The iconoclast of the session was Dr. Charles L. Hungerford, who in the paper "The Physiological Relation of the Dental Pulp to the Economy," hurls defiance to plodders in beaten paths and would be the dental Columbus of the new era. Says he: "It therefore follows that the physiological relationship of the adult pulp to the economy is solely for its own maintenance, and that organ, tissue or man who lives solely for himself has completed his life work, loses his place in the evolutionary chain and nature spews him out of her mouth."

The "Radical Cure of Congenital Cleft Palate," by T. W. Brophy, together with an exhibit of patients operated upon, beyond doubt establishes the soundness of the method practiced by him.

Dr. Cryer's paper on "New Points in Facial Anatomy" was a valuable contribution to the literature of the profession.

We regret that space will not permit a more extended notice of many worthy papers. We congratulate the National Dental Association upon the excellence of the work done and know the perusal of the proceedings will be of intense interest to all dentists who are alive to the progress and opportunities of their profession.

One of the convictions that bears in upon us in looking over this ponderous volume is the incontestable evidence it offers of the rapid strides the profession is making and what heights we have attained from such lowly beginnings. No dentist can read this compilation without being impressed with the progressive spirit of the dental age and his inability to keep abreast with all departments of his profession. Happy will he be if he can master but a segment and be supreme or an authority in that. The profession of dentistry in its wider sense is becoming so broad, its ramifications so numerous, that it is impossible for one man to be a master in all of its branches. The meeting at Niagara demonstrated this beyond peradventure. The effective and sustained work of organization is demonstrated in the pages of the proceedings as well. The National Dental Association seems to be well organized and along the lines to promote true scientific work. The report of the committee on history is especially commendable in this connection. C. E. B.

THE INFLUENCE OF SPEECH UPON THE DIMINUTION OF THE BACTERIA OF THE MOUTH. Read Before the 24th Assembly of the Zahnaerztliche Verein fuer das Koenigreich Sachsen. BY DR. ROESE (*Deutsche Monatschrift*).

The essayist states in abstracto: The teeth were rinsed and the number of bacteria recorded immediately after dinner. After a complete silence for three hours the rinsing was repeated. The number of germs had increased from 100 to 548, i. e., five times and a half.

The same experiments were repeated on four successive days, but differing inasmuch as after a silence of two and one-half hours the person was instructed to read aloud for one-half hour, It then was found that the bacteria increased from 100 to but 184. the reading of one-half hour having destroyed two-thirds of the number of germs which had been found after complete silence.

Talking excites a very abundant secretion of saliva and mucus, and these fluids of the mouth carry the bacteria down into the stomach where they are destroyed.

Hoffmann is indeed justified in seeking the cause for the disarrangements of the stomach which are frequently found with persons in solitary imprisonment in want of opportunity to speak. The bacteria rapidly increase in the mouth; the obnoxious excretions accumulate and in time interfere with digestion.

H. F.

MEMORANDA.

Bubonic plague in Australia and San Francisco.

Why not use more platinum-gold in filling teeth?

Dr. E. R. Mergans, of Sydney, New South Wales, will be at Paris.

Dr. R. H. Hofheinz, of Rochester, N. Y., is in Munich recuperating.

Dr. R. B. J. Yule, of Wellington, New Zealand, has returned home via England.

Alfred Burne, D. D. S., of Sydney, New South Wales, expects to go to Paris early in July.

A fare and one-third is the rate on all roads to Old Point Comfort for the National Dental Association.

Dr. Alfred Owre, of Minneapolis, sailed June 9 for Paris to attend the Dental and Medical Congresses.

Beginning with 1901 the course at the dental department of the University of Michigan will be extended to four years.

Remember that visiting dentists in Paris can use the rooms of the American Dental Club, 40, Rue des Mathurns, from August 5 to 15 inclusive.

We repeat it—no person of intelligence would circulate such scurrilous matter as the *Dental Digest* prints from month to month. The editor prates about his immaculateness so much and so often that we no longer wonder about the statement of Walpole—it may be true.

WISCONSIN STATE DENTAL SOCIETY.

Will meet at La Crosse, July 17, 18 and 19. Visiting dentists cordially invited.

Yours truly,
W. H. MUELLER,
Secretary.

APPRECIATION.

One of our esteemed correspondents in the Far West says: "I look forward every month to the arrival of your journal with a lively interest, as I derive a large amount of knowledge from its perusal."

LOUISVILLE COLLEGE OF DENTISTRY.

The school has been changed from a spring and summer school to that of a fall school, opening October 10, and it is to occupy a commodious new building, thoroughly equipped throughout, and one that is to be used exclusively for dental educational work.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The National Association of Dental Faculties will convene at Old Point Comfort on July 13, 1900. The first session of the meeting will be held on the day of the adjournment of the National Dental Association.

(Signed) S. W. FOSTER,
Secretary Executive Committee.

NEBRASKA STATE DENTAL SOCIETY.

Officers 1900-1: President, Dr. W. H. Sherraden, Omaha; Vice President, Miss Leah Mills, Omaha; Corresponding Secretary, Dr. F. D. Sherwin, Lincoln; Recording Secretary, Dr. W. R. Clark, Omaha. Board of Censors: Dr. McCleery, Beatrice; Dr. A. W. Nason, Omaha; Dr. F. H. Wallace, Omaha. Society adjourned to meet in Omaha, May 16, 17, 18 and 19, 1901.

IOWA STATE DENTAL SOCIETY.

At the annual meeting of the Iowa State Dental Society, held at Dubuque, May 1–3, the following officers were elected for 1900–01: President, T. A. Gormly, Mount Vernon; Vice President, E. D. Brower, Le Mars; Secretary, I. C. Brownlie, Ames; Treasurer, W. R. Clack, Clear Lake. Next meeting will be held at Clear Lake, in May, 1901.

Yours fraternally, I. C. Brownlie.

DENTAL CONGRESS.

We are in receipt of a letter from Dr. C. V. Du Bouchet, of 8 Boulevard des Capuciues, Paris, in which he advises prospective members of the Dental Congress to write to "Agence des Voyages Pratiques," 9 rue de Rome, "Agence Derroches," rue du Fauborg, Montmartre 21, "Agence des Voyages Modernes," rue de L'Echelle, No. 1. Others are Henry Gage & Sons, rue Scribe, and Thos. Cook & Sons, London and Paris. By so doing rooms may be engaged in advance at moderate prices.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The seventeenth annual session will be held at the hotel "Hygeia," Old Point Comfort, Va., beginning at 10 A. M. Friday, July 13, 1900, and continue in session three days.

Delegates will present certificates signed and sealed by the officers of their respective boards.

The hotel rates will be $2.50 per day. For New York, New Jersey and Eastern States members, the Old Dominion Steamship Co., foot of Beach Street, New York, will make a reduced rate of $12, including state rooms and meals, sailing 3 P. M. Monday, July 9, and Thursday, July 12.

Chas. A. Meeker, D. D. S.,
Secretary.

LODGING IN PARIS.

An institution recommended by the Journal *L'Odontologie* "Voyages Pratiques," presided over by M. Janot, 9 rue de Rome Paris, will, when notified one month in advance, reserve rooms for members of the congress and their families at prices as follows: A, rooms 6 francs 50 centimes ($1.30 per day); B, 5 francs 50 centimes ($1.10 per day). This includes service and lights. Rooms also for 4 francs and 3½ francs. These are generally with two beds. Baths extra. Most of these rooms are in the immediate neighborhood of the exposition where the congresses are held.

Apartments for a family of three or four persons, 270 francs per month. (We think these quarters would be very simple.) A room for 5 to 10 francs ($1 to $2) would be reasonable by the day, but by the month, for a single traveler, about 25 per cent off would be all right. The writer has spent weeks in Paris at all seasons of the year, and living is generally expensive only in the large or exclusive hotels. It will be well to secure some kind of accommodations before going to Paris.

RESOLUTIONS REGARDING DR. J. N. CROUSE AND THE DENTAL PROTECTIVE ASSOCIATION.

Adopted by the Illinois State Dental Society, at Springfield, May 9, 1900.

In view of the recent activity on the part of the International Tooth Crown Company, their agents and allies, both in and out of the profession, and the appearance at the same time in some of the dental journals of articles reflecting on the management and tending to destroy confidence in the Dental Association, the Illinois State Dental Society, in the thirty-sixth annual meeting assembled, deems it most opportune at this time to again put on record its confidence in and loyalty to the association and its management, which has made of it such a wall of protection to the entire profession.

This society desires also in the most emphatic manner to express its confidence in the personal integrity of Dr. J. N. Crouse, and hereby records its deep appreciation of the unselfish personal sacrifices that he has so freely made, for so many years, for the good of the cause.

This society considers the cause of the Dental Protective Association the cause of the profession, and it condemns as inimical to the interests of the entire profession the circulation of slanders by traveling men or the publication of articles that are calculated to weaken the hands of those who are fighting our battles and to put weapons into the hands of our enemies. And this society hereby calls upon all those who have the good of the profession at heart to give the Dental Protective Association a most cordial and unqualified support, and counsels them to show in no uncertain way their utter disapproval of all those who give aid and comfort to the common enemy.

(Signed) C. B. ROHLAND,
E. K. BLAIR,
J. G. REID, } Committee.

INDIANA STATE DENTAL ASSOCIATION.

The forty-second annual meeting of the Indiana State Dental Association will take place at Indianapolis, Tuesday, Wednesday and Thursday, June 19, 20 and 21. The Denison Hotel will be headquarters. All papers will be read and business sessions will be held in the Indiana Dental College, corner of Ohio and Delaware Streets, adjoining the hotel. Clinics will be held at the Central College of Dentistry, corner of Ohio and Illinois Streets. You are cordially invited to attend. Following is the program:

Tuesday, June 19, 1900, 10 A. M.: Meeting called to order. Invocation, Rev. J. Cumming Smith, Indianapolis. President's Address, Dr. M. A. Mason, Fort Wayne. Adjournment for the payment of dues and the reception of new members. 2 P. M.: Reports of committees. 1. Publication; 2. Ethical; 3. Legislation; 4. Necrology; 5. State Board of Dental Examiners; 6. Committee on President's Address; 7. Membership; 8. Science and Literature; 9. Art and Invention. Other business. Paper, "Orthoform and Nirvanin," Dr. R. A. Adams, Clinton, Ind. Leaders in discussion, Drs. A. T. White, Newcastle, and C. E. Rodman, Peru. 8 P. M.: Paper, "The Specialist and the Fifth Pair of Nerves," D. A. Thompson, M. D., Indianapolis. Leaders in discussion, Drs. G. E. Hunt, Indianapolis; Geo. D. Kahle, Indianapolis.

Special session: German House. N. B.—The German House is situated at the southwest corner of Michigan and New Jersey Streets.

Wednesday, June 20, 1900, 9 A. M.: Clinics, Central College of Dentistry. 2 P. M.: Paper, "Lower Impressions," Dr. C. F. Green, New Albany. Leaders in discussion, Drs. J. F. Werner, Elkhart, and H. A. Moyer, Kendallville. Paper and table clinics, "Noncohesive Foils," Dr. J. R. Callahan, Cincinnati. Leaders in discussion, Drs. J G. Reid, Chicago, and Alex. Jameson, Indianapolis. Election of officers. 8 P. M.: Paper, "Æsthetic Dental Prosthetics," Dr. Geo. E. Johnson, Fort Wayne. Leaders in discussion, Drs. J. Q. Byram, Indianapolis; J. H. Morrison, Connersville. Paper, "Compressed Air," Dr. W. A. Heckard, Indianapolis. Leaders in discussion, Drs. R. I. Blakeman, Indianapolis, and S. B. Lewis, Evansville.

Thursday, June 21, 1900, 9 A. M.: Clinics, Central College of Dentistry. 2 P. M.: Paper, "Cocaine and Eucaine B," Dr. B. B. White, Terre Haute. Leaders in discussion, Drs. M. M. Haas, Evansville, and Jesse Megee, Rushville. Paper, "Solila Gold," Dr. D. L. Stine, Indianapolis. Leaders in discussion, Drs. D. A. House, Indianapolis; J. R. Clayton, Shelbyville. Paper, "Offensive Breath," Dr. S. M. Cummins, Elkhart. Leaders in discussion, Drs. M. H. Chappell, Knightstown, and S. T. Kirk, Kokomo. 8 P. M.: Paper, "Diagnosis of the Dentist Himself," Dr. Oswald M. Brown, Terre Haute, Ind. Leaders in discussion, Drs. W. W. Mungen, Fort Wayne, and H. D. Weller, Indianapolis.

1. Dr. T. W. Brophy, Chicago. Oral Surgery.
2. Dr. W. V-B. Ames, Chicago. Some of the possibilities of new process oxyphosphate of copper.
3. Dr. Grafton Munroe, Springfield, Ill. Some uses of hydronapthol.
4. Dr. C. H. Rosenthal, Cincinnati. Orthodontia.
5. Dr. W. D. Hulick, Cincinnati. Broken facings on fixed replacement.
6. Dr. M. F. Ault, Indianapolis. Six normal and six abnormal root canals, each with a different filling material and appearance under the magnifier.
7. Dr. J. Q. Byram, Indianapolis. Snow face bow in taking a base plate bite.
8. Dr. Alex. Jameson, Indianapolis. Pressure anesthesia.
9. Dr. W. A. Heckard, Indianapolis. Clinical demonstration of nitrous oxid oxygen and compressed air.
10. Dr. E. E. Reese, Indianapolis. Porcelain inlay.
11. Dr. F. C. Green, New Albany. Lower impressions.
12. Dr. M. H. Chappell, Knightstown. Treating pulpless teeth, using the solution of H. K.
13. Dr. C. E. Erwin, Terre Haute. Cast gold fillings from models.
14. Dr. T. A. Goodwin, Warsaw. Porcelain inlay.
15. Dr. F. M. Bozer, Logansport. Pressure anesthesia and immediate root canal filling in anterior teeth.
16. Dr. F. J. Prew, Bloomington. Oxyphosphate of copper cement.

17. Dr. N. W. Hiatt, Marion. Porcelain faced gold crowns.

18. Dr. Jesse Megee, Rushville. Modeling compound impressions.

19. Dr. G. W. Throop, Muncie. Dentenax tooth, and model of set of teeth, without plate, with crown attachments.

20. Dr. J. H. Teal, Kendallville. Changing shape and color of porcelain teeth.

21. Dr. H. R. Isenhower, Bloomfield. Dr. Angle's appliance, using plaster casts.

22. Dr. J. F. Warner, Elkhart. Pressure anesthesia.

23. Dr. G. E. Johnson, Fort Wayne. Logan crown with gold attachment.

24. Dr. J. S. McCurdy, Fort Wayne. Will show cases in orthodontia.

25. Dr. W. W. Mungen, Fort Wayne. Logan crown with special gold attachments and showing the Prothero investment.

26. Dr. W. P. Crowell, Monticello. Clinic promised.

27. Dr. H. A. Moyer, Kendallville. Clinic promised.

28. Dr. H. J. Goslee, Chicago. Table clinic.

29. Dr. A. G. Johnson, Chicago. Cleavage of enamel preparatory to crowning, using instruments of clinician's own design.

MISSOURI STATE DENTAL ASSOCIATION.

The thirty-sixth annual meeting of the Missouri State Dental Association will be held at Louisiana, Missouri, July 10, 11, 12, 13, 1900.

A cordial invitation is extended to all reputable dentists to be present and participate in the proceedings and become members of the association.

All railroads in the State have granted a one and one-third fare on the certificate plan.

The Palmer House rates are $1.50 and $2 per day.

Essays and discussions: Hon. Champ Clark, "Address of Welcome."

Dr. W. L. Reed, Mexico, "President's Address." Discussion opened by Dr. F. M. Fulkerson, Sedalia; Dr. F. H. Achelpohl, St. Charles.

Dr. W. H. DeFord, Cedar Rapids, Iowa, "Necrosis Involving the Alveolar Process, Superior Maxillary, Nasal and Palate Bones, Resulting from Maltreatment of an Alveolar Abscess." Discussion opened by Dr. J. E. Cravens, Indianapolis, Ind.; Dr. A. M. Tuft, Liberty.

Dr. J. B. Chaffee, Carthage, "Things I Have Noticed and Other Things." Discussion opened by Dr. W. M. Carter, Sedalia; Dr. J. B. McBride, Springfield.

Dr. Ira B. Crissman, Chicago, "Relation of Dental Colleges to the Profession and General Public." Discussion opened by Dr. D. R. Stubblefield, Nashville, Tenn.; Dr. E. N. LaVeine, Kansas City.

Dr. Harry M. Hill, St. Louis, "The Material Porcelain." Discussion opened by Dr. C. N. Darby, St. Joseph; Dr. D. O. M. LeCron, St. Louis.

Dr. H. E. Horn, De Soto, "Finished Dentistry." Discussion opened by Dr. Geo. A. Bowman, St. Louis; Dr. Geo. H. Belding, Calmar, Iowa.

Dr. M. D. Haunsfar, Warrensburg, "Bacteriology and Pathology, their Relation." Discussion opened by Dr. W. H. DeFord, Cedar Rapids, Iowa; Dr. H. Prinz, St. Louis.

Dr. John G. Harper, St. Louis, "Incidents in Practice." Discussion opened by Dr. T. W. Pritchett, Whitehall, Ill.; Dr. R. J. Winn, Bolivar.

Dr. H. H. Sullivan, Kansas City, "Openfaced Gold Crowns." Discussion opened by Dr. W. N. Conrad, St. Louis; Dr. E. G. Simmons, Farmington.

Dr. R. C. Brophy, Chicago, "The Universal Tooth." Discussion opened by Dr. W. E. Tucker, Springfield; Dr. W. F. Lawrenz, St. Louis.

Dr. Chas. L. Van Fossen, Kansas City. Subject to be announced. Discussion opened by Dr. Ira Crissman, Chicago; Dr. W. W. Cleveland, Louisiana.

Dr. C. D. Lukens, St. Louis, "Lantern Lecture on Orthodontia." Discussion opened by Dr. J. E. Hinkins, Chicago; Dr. Geo. A. McMillen, Alton, Ill.

Dr. D. J. McMillen, Kansas City, "Preparation of Cavities and Fillings with Noncohesive and Cohesive Gold Foil," with illustrations. Discussion opened by Dr. B. G. Stevens, Hannibal; Dr. M. R. Windhorst, St. Louis.

Dr. J. T. Fry, Moberly. Subject to be announced. Discussion opened by Dr. N. H. Gaines, Independence; Dr. P. H. Eisloeffle, St. Louis.

Dr. D. Forr, Liberty, "Questions on Methods and Practice." Discussion opened by Dr. E. E. Shetluck, Kansas City; Dr. W. W. Birkhead, Louisiana.

Clinics.—Second Day.

Dr. J. E. Cravens, Indianapolis. Alveolar periostitis.

Dr. J. E. Hinkins, Chicago. Contour moss fiber gold filling.

Dr. D. R. Stubblefield, Nashville, Tenn. Operative and prosthetic technics.

Dr. R. C. Brophy, Chicago. Table clinic, Dentenax slotted teeth.

Dr. M. R. Windhorst, St. Louis. Filling with new process gold foil. Demonstrating S. S. White mechanical mallet.

Dr. T. W. Pritchett, Whitehall, Ill. Contour amalgam fillings in molars and bicuspids.

Dr. F. F. Fletcher, St. Louis. Table clinic—post anchorage for pulpless teeth, in bridge work.

Dr. J. W. Hull, Kansas City. Immediate pulp extirpation without cataphoresis.

Dr. Geo. H. Belding, Calmer, Iowa. Gold filling, using hand mallet.

Dr. W. W. Cleveland, Louisiana. Swaged metal plate from plaster model.

Dr. Clinton B. Helm, Rockford, Ill. Gold filling, using Bonwill mallet.

Dr. D. O. M. LeCron, St. Louis. Table clinic—porcelain inlay, crown and bridge work.

Dr. D. J. McMillen, Kansas City. Combination cohesive and noncohesive gold filling.

Dr. W. W. Birkhead, Louisiana. Pyorrhea.

Dr. H. H. Sullivan, Kansas City. Open face gold crowns.

Dr. W. L. Bridgeford, Macon. Contour gold filling.

Dr. John G. Harper, St. Louis. Method of swaging backing for porcelain-faced crowns.

Dr. E. W. Stevens, Cameron. Corners and fillings from gold plate for incisors and cuspids.

Dr. J. L. Clark, Pleasant Hill. Bridge for tilting molars.

Clinics.—Third Day.

Dr. Ira B. Crissman, Chicago. De Trey's crystal gold filling in labial cavity.

Dr. W. F. A. Schultz, St. Louis. Operation for necrosis resulting from abscessed antrum.

Dr. Geo. A. McMillen, Alton. Table clinic—practical crown work.

Dr. J. S. Letord, Kansas City. Demonstrating working qualities of Eoff's gold for filling.

Dr. N. H. Gaines, Independence. Treatment of exposed pulp and filling with cement.

Dr. Chas. L. Van Fossen, Kansas City. Removable facings for crown and bridge work.

Dr. H. Prinz, St. Louis. Application and manipulation of mummifying paste.

Dr. R. J. Winn, Bolivar. Contour gold fillings, No. 4 foil, heavy mallet.

Dr. W. W. Flora, Carthage. Swage metal plate over plaster cast.

Dr. J. C. Pasqueth, Mexico. Gold filling, gingival cavity, labial surface.

Dr. W. F. Lawrenz, St. Louis. Table clinic—the Goslee system of porcelain crown and bridge work.

Dr. S. C. A. Rubey, Clinton. Noncohesive and cohesive gold foil in approximal cavity.

Dr. C. D. Lukens, St. Louis. Orthodontia.

Dr. E. G. Simmons, Farmington. Method of making open faced gold crown.

Dr. M. R. Windhorst, St. Louis. A rapid system of bookkeeping—modification of card system.

Dr. A. G. Johnson, Chicago. Cleavage of enamel preparatory to crowning, using instruments of clinician's own design.

Dr. C. H. Williams, De Soto. Table clinic—rapid method, making perfect fitting open face gold crown for bridge work.

Dr. D. J. McMillen, Kansas City. Extracting roots with elevator.

B. L. Thorpe,
Corresponding Secretary,
St. Louis.

Bogus medical college authorities all arrested by the United States officials and held to the Grand Jury June 14. More next month.

IN MEMORIAM.

BIOGRAPHICAL SKETCH.

THEODORE MENGES, B. S., A. M., D. D. S.

The sad intelligence of the death of Dr. Theodore Menges, who was taken from our midst in the full prime of life and usefulness, was received by his numerous friends with great sorrow. His illness covered the brief period of one week, and his death, on June 1, at the Passavant Hospital, came immediately after the second operation performed by Dr. Fenger for appendicitis. His exhausted condition and low tone of physical vitality were responsible for his sudden collapse, while the shock sustained at the second operation was so pronounced that he never rallied.

Dr. Theodore Menges was born May 2, 1854, on a farm near Bristol, Ind. He fell heir to the labors which accompany the "farmer boy's life," and at an early age finished the common school course. He studiously sought to acquire an education, and his initial ambition was to be a teacher, and at sixteen he taught school in his home district. Eager to rise in his chosen profession, he journeyed to Lebanon, Ohio, and entered the college at that place. Being obliged to meet the expenses of tutorage, he taught during the winter months and attended college in the summer, devoting his spare time to selling standard works to the reading public of that portion of the State. In 1874 he completed the teacher's course at this institution, and subsequently matriculated in the scientific department of the Northern Indiana Normal School, where after two years of diligent study he merited with highest honors the degree of "Bachelor of Sciences." Anxious to become a thoroughly trained pedagogue, he prosecuted a course in the classics at this institution, and in 1878 received the degree of "Master of Arts."

Upon finishing this course he was recommended by Principal H. B. Brown to take up the principalship of the high school of Bloomfield, Indiana. After teaching at this school he organized the Bloomfield Normal School, and among his co-teachers was Miss Alice Brown, a graduate from the Northern Indiana Normal School, and she became his wife in 1880. Dr. Menges continued in the capacity of principal of this normal school for about five years. In his leisure moments he studied medicine, and in 1881 he took the first year's course in the Jefferson College of Medicine at Louisville, Kentucky. The following year found him patiently studying law, and in 1883 he was admitted to the bar, and in the fall of the year he purchased the law practice of Boys & Shaw, and incorporated the firm of Menges & Stone, which firm continued to do a most prosperous law business until 1886, when Dr. Menges moved West to Kimball, Nebraska, and five years found him and his wife further West among the Rockies. He located at Cheyenne, Wyoming, where he engaged in law, real estate and mining, and he conducted an exceedingly profitable business. In 1892 he came to Chicago and opened a real estate office, but he did not long continue in this business. Shortly after matriculating in the American College of Dental Surgery, Dr. Menges and Dr. B. J. Cigrand purchased this dental college. Dr. Menges was elected to assume the arduous duties of secretary, and besides looking after the business matters of the school, lectured on chemistry and philosophy. As an evidence of the phenomenal success of the institution, it is only necessary to add that the roster of the school from 1892, with thirty-seven students, was raised to 427 in four years. The success of this great institution, without question, was largely due to the untiring devotion of Dr. Menges. He received the degree of "Doctor of Dental Surgery" in 1893, and from this period on became a great power in dental education.

In 1896 the Northwestern University sought to purchase the American College of Dental Surgery, and Drs. Menges and Cigrand upon receiving the sum of $50,000 surrendered its charter. The university had a dental department, but, upon effecting the consolidation of the two schools, it possessed the largest dental institution in the world. Dr. Menges continued in the capacity of Secretary of the Faculty, and also filled the chair of Professor of Physics.

It was but natural that a man of his prominence should be sought after by various dental organizations, and he was an influential member of the National Dental Society, Columbian Dental Congress, Chicago Dental Club, Chicago Dental Society, the Illinois State Dental Society, the Odontographic Society, the Dental Protective Association, the Psi Omega Greek Letter Society, and kindred dental associations. His high position on the executive committees of the National Association of Dental Faculties will bespeak the value of his good judgment and counsel.

It is true that he died at an early age; still, considering that life is made, measured not by hours, months or years, but by the good accomplished, we would be obliged to say that he lived to a ripe old age. Some men perform a great deal in a short time, and he certainly was one of these persons. Indeed, he labored with such constancy that he died a martyr to his duty.

His energy and determination were really Napoleonic, and few lives can better exemplify the saying of Goethe, "Have an honest purpose and then dare to perform it."

He possessed strong convictions and was ever ready to avow and defend them, and mere opposition added strength to his positive nature. He took the advice of Polonius, "Be slow to enter into dispute, but once in, make your enemy fear you." Yet in this plucky and positive character there ran a vein of liberality seldom found in a person so thoroughly imbued with the love of stability. He always advocated a broad and liberal policy, and was enthusiastic in his plans of managing a purely democratic dental college. He possessed little patience for formalities and still less for anything which evinced aristocratic tendencies. His frank and unassuming manner won for him the respect of all who yearned for a trustworthy friend. He exercised an almost unparalleled influence over student bodies, and his presence before them was sufficient to awaken the most latent enthusiasm and lent inspiration to all present. He possessed a wonderful faculty of communicating knowledge to others, and his many talents fitted him as an educator, and in this latter capacity he was as preëminent as he was successful as a financier. He also possessed the dual talents of an organizer and disciplinarian, and his daily contact with classes spurred the students to continuous and effective efforts, for his encouraging personality was among his striking noble qualities. He was an earnest student, a profound teacher, a devoted husband, a loyal American and Christian. His life clearly exemplifies what comes from the happy influence of a good home and a thorough college training, and adds glory to our form of government, in that he struggled from childhood among adversities, and when at the pinnacle of a pedagogical career, died to receive the crown at the hands of his Redeemer.

These are the mere initials of his greatness as known and admired by his close friend, Dr. B. J. Cigrand.

DR. THEODORE MENGES.

Theodore Menges, A. B., B. S., D. D. S., secretary of the faculty of the Northwestern University Dental School, and one of the most popular and best known men in the dental profession in this country, died June 1, at Passavant Memorial Hospital from the effects of an operation for appendicitis. Dr. Menges was ill about a week, when he underwent a first operation. Three days later another one was performed, but the strain was too great and he died nine hours later, after regaining consciousness. Two members of the school's faculty were with him when he died.

The funeral was held Monday, June 4, at the First Methodist Church, Clark and Washington Streets. The body was cremated at Graceland, and the ashes sent to Bristol, Ind., the birthplace of the deceased.

The high standing of the Northwestern University Dental School may be attributed to the efforts and ability of Dr. Menges. He was virtually the backbone of the institution, being its business manager. Professor Menges first became identified with the American Dental College. It was in 1890, when still a student there, that he bought it, and with his perseverance soon put it on its feet. In 1896 the American Dental College and the Northwestern University Dental School were consolidated. Then Mr. Menges assumed control of the combination and had steadily pushed his work forward.

Dr. Menges was born in Bristol, Ind., forty-six years ago. He was graduated from the Northern Indiana Normal School and became a well-known teacher in that part of the State. He married Alice Brown, who was also a student at the normal school, and went West. He accumulated a fortune and opened a law office in a Nebraska city. When real estate in the West fell in value he sold out and came to Chicago and entered the American Dental College.

Professor Menges wrote many articles on dental surgery and was the owner of the *Dental Register*, the oldest dental journal in America. He was recently appointed chairman of the executive committee of the National Association of Dental Faculties. He was always a favorite with his students. The Northwestern University Dental School will be closed until Tuesday.

DR. THEODORE MENGES.

WHEREAS, God in His infinite wisdom has removed from our midst and from the work in which he was becoming so great a force, our friend and teacher, Dr. Theodore Menges, and

WHEREAS, We, the students of Northwestern University Dental School, realizing the great loss that is sustained thereby, be it

Resolved, That we bow in humble submission to the will of Almighty God, and hereby express our heartfelt sympathy to the bereaved wife and sorrowing friends, and to the Faculty of Northwestern University Dental School, of which he was a valued and honored member; and be it

Resolved, That each one having lost a personal friend, we express our appreciation of his untiring efforts and devotion to the upbuilding of the dental profession at large, to the Northwestern University Dental School, and to the individual interests of its students; and be it further

Resolved, That a copy of these resolutions be presented to Mrs. Alice Menges, to the Faculty of said institution, and that copies be sent to the leading dental journals for publication.

ELMORE T. HULL.
WM. A. KAAKE.
L. J. SCHNEIDER.
EUGENE MAGINNIS.

Chicago, June 2, 1900.

The following resolutions were adopted by the Chicago Dental Society, June 5, 1900, in memory of Theodore Menges:

For, as much as the Almighty God has taken to its home the spirit of our beloved associate, Theodore Menges, who for many years was not only an honorable member of the Chicago Dental Society but a valuable and sincere supporter of dental educational work, giving freely of his time, mind and substance in his noble purpose; the advancement of a higher dental educational standard in America, and in this we shall greatly miss his strong and charming personality and upright character; be it

Resolved, That in his death this society and the profession of dentistry are caused to suffer a severe loss, and we, the members thereof, hereby extend to the bereaved widow our sincere sympathy.

Resolved, That these resolutions be entered on the minutes of this society and that an engraved copy of the same be transmitted to the bereaved Mrs. Theodore Menges as a mark of our respect.

FRANK N. BROWN, *Chairman*,
A. H. PECK,
H. ALFRED GUNTHER,
Committee.

GEORGE H. CUSHING, M. D., D. D. S.

Dr. George H. Cushing died near Los Angeles, Friday, May 25, about 11 A. M., from uremic poisoning. He had been ill only three or four days. At noon on Monday preceding his death he was in the college attending to his duties, but later in the day was not feeling well, and started for home about 4 P. M. He was very ill on Tuesday, Wednesday and Thursday—unconscious, in fact—but on Friday morning he was himself again, but after breakfast he was taken with convulsions and died in half an hour. His remains were cremated at his own request and forwarded to Chicago, where he had resided for more than forty years. He leaves a widow and four children—two sons and two daughters. He was twice married; his first wife died in 1858.

Dr. Cushing was born on the 11th day of May, 1829, in Rhode Island, and after attending the usual schools of that period began the study of dentistry with the late N. A. Fisher, M. D., of Providence, R. I. After a brief pupilage he began practice on his own account in Connecticut, and later in Bristol, R. I. In 1849 he, in company with N. F. Cooke, M. D., sailed for California around the Horn, landing in San Francisco in January, 1850. He spent several years mining and practicing dentistry, held two or three offices in different counties where he was located, and in 1856 returned to Rhode Island. In March, 1857, he came to Chicago to assist the late Dr. Charles H. Quinlan and take charge of his practice while he traveled in Europe. He was connected with the Drs. Quinlan for ten years and then began practice for himself, in which he was highly successful. He early became interested in dental societies, and was one of the organizers of the Chicago, the Illinois and the Odontological Societies. In 1863 the Ohio College of Dental Surgery conferred the honorary degree of D. D. S., and later Rush Medical College of Chicago the degree of Doctor of Medicine. He was most enthusiastic in his attendance upon and devotion to dental societies. He was elected Vice President of the American Dental Association in 1865, was twice President of the Chicago Dental Society, twice President of the Illinois State Society; also President of the Mississippi Valley Dental Society, Odontological Society, American Dental Association, National Association of Dental Faculties, and of the Association of Examiners, and for nearly twenty-five years Recording Secretary of the American Dental Association, later re-named as the National Dental Association. Dr. Cushing was one of the most careful and painstaking operators, and had reached the highest degree of perfection in his art. Added to his technic in operative dentistry was his broad knowledge of the various branches of his profession, which made him a safe and sound counsellor. From his large experience and his unsullied reputation very naturally came the offer to make him the first professor of theory and practice when the Chicago College of Dental Surgery was instituted. In this field he found congenial work.

He never grew old in his feelings or in his enthusiasm for his profession. He was a good friend and a cordial hater of all shams and suspicions of double dealing. The writer of this tribute had known him intimately for many years, and if there is a piece of pure gold anywhere it is not purer than his character, private and professional. While his was not a nature to participate in debates or speech making, still at times he overcame his diffidence and spoke easily and well. One of his most striking peculiarities was his watchfulness over the societies he so much loved. He was always on the alert and at the meeting place early and late. He had the most profound contempt for those who sounded false notes in speech, papers or action. We thought, who knew him well, that we had no one growing up in our midst who could take his place; but this world is so large and there are so many good men that we believe our ranks will close up and we shall all have to stand shoulder to shoulder and each do his best in the drama of life, so that we will not mourn him too much. We could write for hours about our departed friend, but to many it would not be interesting and to others it might seem too laudatory, and so we throw down the pen and pray that our friend is at peace in the bosom of his Maker.

The following resolutions were adopted by the Chicago Dental Society on the death of Geo. H. Cushing, M. D., D. D. S., Chicago, Ill.:

It has come to the notice of this society that our beloved friend and fellow-practitioner, Geo. H. Cushing, one of the founders of this society, departed this life May 25, 1900, at Los Angeles, Cal.; therefore, be it

Resolved, That we mourn his loss as personal, because every member of the society knew him and loved him as a friend, counselor and guide. This is no ordinary expression from a committee appointed to draw a memorial, but one where every member feels that it is a personal loss to no longer see and feel the presence of one much loved; be it further

Resolved, That in Dr. Cushing we mourn the loss of one who was in every sense an inspiration to do one's best in all the complex phases of life's duties. He was monitor, teacher and helper in all emergencies. His life was devoted to his profession in a sense little understood by the thoughtless, and his influence for good was far reaching and always to be relied upon. We feel that in this feeble tribute to the vast labors he propounded for forty years that we fall short in our estimation of them, because no one was more stanch in his devotion to private or public duties than our departed friend. He had his faults, but they were so obscured by his noble and gentle nature that few knew of them, so that they must lie in an oblivion so profound that only his most bitter enemy may recall them. For us, he was a pattern of the kindly, professional gentleman and devoted friend. We extend to his family our condolence and this expression of our sorrow, and we will all go to his last resting place feeling that life is but a brief day, and we will soon meet him again in the near future, where all is peace and serenity.

Resolved, That a copy of this tribute be sent to the family of the deceased and to the dental journals for publication.

A. W. HARLAN,
TRUMAN W. BROPHY, } *Committee.*
JOSEPH W. WASSALL,

LOS ANGELES, CAL., May 29, 1900.

The following resolutions, by the students of the classes of 1900, 1901 and 1902, of the College of Dentistry, were passed at a special meeting held for the purpose:

WHEREAS, In the death, after a short illness, of Prof. Geo. H. Cushing, M. D., D. D. S., which occurred at his home in Ivanhoe on the morning of the 25th inst., the College of Dentistry, University of Southern California, has lost one of its leading members, who during the past session served as Professor of Clinical Operative Dentistry;

Resolved, That in the death of Professsor Cushing the students of this institution have sustained the loss of one who had been most efficient and faithful to his duties, giving a great deal of time to us in the proper instruction in his branch;

Resolved, That as an instructor he displayed wisdom and discretion, and wonderful tact in dealing with all with whom he came in contact;

Resolved, That in him we found the greatest kindliness of nature and generosity of heart, which will always be remembered by us with the warmest affection;

Resolved, That we extend our sincere and heartfelt sympathy to his bereaved family, in this their great affliction;

Resolved, That these resolutions be entered on our records and a copy sent to the family of the deceased and to the several dental journals for publication.

H. C. Gleason, *President.* E. P. Hilliker, *Secretary.*
Class 1900.
Chas. E. Rice, *President.* M. Edna Osborne, *Secretary.*
Class 1901.
J. W. Gray, *President.* Geo. A. Comte, *Secretary.*
Class 1902.

DR. A. L. NIXON.

Dr. A. L. Nixon died at his home in Stanton, Neb., May 10, 1900, of typhoid fever. Deceased was born September 15, 1864, at Richmond Hill, Ontario, and after graduating from the public schools of his native town, took a course in the university. After spending some time in the study of dentistry, he located at Stanton in 1886, where he resided till his death, becoming one of the prominent dentists of the Elkhorn Valley. He was a faithful member of the Nebraska State Dental Society, as well as the Masonic Order and other fraternal organizations. A wife and son survive him.

DR. J. L. NEWMAN.

Dr. J. L. Newman, a dentist for forty years in Chicago, died June 14. Dr. Newman was much respected and held a large clientele.

THE

DENTAL REVIEW.

VOL. XIV. CHICAGO, JULY 15, 1900. No. 7

ORIGINAL COMMUNICATIONS.

A STUDY OF DENTAL DEFORMITIES IN FINE ART AND SCULPTURE.*

By B. J. CIGRAND, B. S., M. S., D. D. S., CHICAGO, ILL.

(Copyrighted.)

PART II.

(Continued from page 451.)

Realism is everywhere apparent. In all kinds of works we are gradually growing to love the real. Teeth in the future will be more in evidence in all paintings and photographic productions. The awkward portrait resulting from long posing will be a thing of the past. The eminent painter and sketcher, J. S. Wachtman, writes:

"Do something simple; begin by drawing leaves before attempting masses of foliage. A stem of maple leaves as it falls to the ground just fresh from the tree is more beautiful than it will ever be again. Put it in a vase and it at once becomes conventional. If you are working from the figure do not do the conventional sort of thing that we find in a sketch-class model, but rather the unconscious attitude. The charm of childhood lies in its unconsciousness. *Do we like people who pose? No.* A figure that is obviously arranged affects one in the same manner. Wherever you go watch attitudes and remember them for future use. Here we do not want the illustrator's art; we are not working first for the publishers, but to reproduce some phase of nature that is simple and artistic."

In order to have paintings and photographs appear perfect and free from conventionality, the artists are posing the subject with a smile and even in the mood of showing the teeth. This gives a happy and more cheerful picture and is generally more easily recognized. A recent photographic journal says that sixty per cent of work show the teeth.

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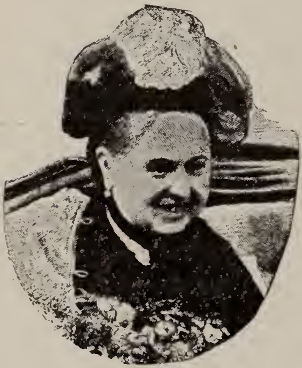
*Read before the Odontographic Society of Chicago.

If it is the desire of artists to paint the faces as they are seen in this happy age, they will find it necessary to give close attention to the lower third of the face, which contributes so liberally to a smiling and cheerful feature.

The world is growing more pleasant and less austere. People are no longer physically and mentally slaves, and a happy smile is tolerated in most all portions of the earth. The effect of the tyrants' long rule which brought frowns and sorrow to the human face is no longer a potent factor; the liberal governments which are wielding so pronounced an influence on all earthly governments have brought cheer and smiles to the mirror of the human soul. Even sovereigns do not pose in the majestic and dignified manner as they did a generation ago. The recent Knight picture of Queen Victoria fully corroborates this statement. Eng. No. 17. The teeth show and no attempt is made at majestic bearings, yet there is interest in the simple face which discloses a


ENG. 17.

"Queen Victoria."
By Knight.

ENG. 18.

"Princess Auesberg."
By D. Hart.

naturalness seldom seen in other queens' likenesses. R. Duff, of England, to whom I am indebted for this rare portrait, writes: "I always think, though I believe that I am alone in thinking, that for all its inherent likeness, her majesty's face, when in perfect repose, is somewhat cold and proud. A mere smile, and although the queen is yet visible in every feature, the woman—gracious, friendly, pleased—is now predominant. This portrait, the only one of its kind, I think, will surely go down to posterity, and be remembered and loved when twice statelier portraits shall have lost their interest or be forgotten. The queen has surely inaugurated a new departure in regal portraits, and the first to pattern after the queen was the Princess Auesberg, and her portrait by D. Hart gives a fair dental expression. Eng. No. 18.

ENG. 19.

"When Lydia Smiles."
By Joseph Coomans.

ENG. 20.

"A Woman's Smile."
By E. A. Carolus Duran.

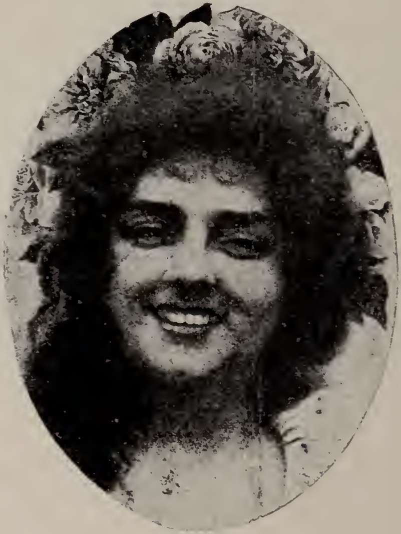
The large majority of artists give too little attention to the teeth even when the purpose of the picture aims to portraying the dental organs and the title of the painting indicates that the artist intends to demonstrate the functions of the mouth and teeth in a happy countenance. Artists completely fail to give the teeth any serious consideration. The famous painting "When Lydia Smiles," by Joseph Coomans (copyrighted by A. D. Braun & Co.) illustrates this shortcoming. Eng. No. 19.

The famous facial artist, E. A. Carolus Duran, in his great picture "A Woman's Smile," pays no attention to dental delineation. Eng. No. 20.

The portrait known as "Greetings from the Garrison," by A. Ritzberger, is open to a like criticism. The entire features, save the teeth, have received pains-taking labor. Eng. No. 21.

ENG. 21.

"Greetings From the Garrison."
By A. Ritzberger.



ENG. 22.

"A Happy Smile."
By Vailant.

In the portrait "A Happy Smile," by R. Vailant, the teeth are represented; but they are of equal width and length, while the incisal edges are all pointed and saw-shaped. Eng. No. 22.

"A Character Study," by J. S. Beckwith, pictures a most contented smile but the teeth are too narrow and uniform in shape. Eng. No. 23. The teeth are represented too small, an error which presents itself in many of our world's famous paintings. In the painting "The Hunter's Story," by A. Glisenti, we again observe the dental organs in miniature, giving the features a most unattractive appearance. Eng. No. 24.

In childhood small teeth are in harmony with the features. This is especially true of the deciduous dentures, and an excellent illustration of this is given in the picture "Wait a Minute," by A. J. Esley (by permission of the Berlin Photographic Society). Eng. No. 25.

The painting by W. A. Bouguerian, entitled "A Pleasant Burden," exhibits small or deciduous teeth, while the face of the child indicates that the larger teeth should be in position. Eng. No. 26.

The question of light enters into the results of paintings, and the shadows often so fall as to completely hide the teeth when taken by camera or when shaded by brush. Yet the naked eye discerns the teeth accurately. The camera is a most accurate instrument for producing objects which are exhibited in light, but the eye is by far more clear-sighted and is seldom at loss to see distinctly objects though they be veiled in darkest shadow. The light may be high or low, direct or reflected, natural or artificial. The face may be turned upward, as in "A Winter Blossom," by J. Ballavoine (copyrighted by Braun and Clement). The teeth are simply designated by means of white lines. Eng. No. 27.

ENG. 23.

"A Character Study."
By J. S. Beckwith.

ENG. 24.

"The Hunter's Story."
By A. Glisenti.

The face may be directed downward as in the painting entitled "Cherries and Roses," by Leon Herbs, causing a delicate shadow to fall on the mouth. But the teeth should present a more natural appearance. Eng. No. 28.

When the face is erect and there is a clear and diffused light, as in the famous picture known as "A Daughter of the South," by Paul Tillier (copyrighted by Braun and Clement), there certainly can be no reasonable excuse for the teeth to appear other than anatomical. The artist failed to add to this typical feature the additional charm of well formed teeth. Eng. No. 29.

ENG. 25.

"Wait a Minute."
By A. J. Esley.

ENG. 26.

"A Pleasant Burden."
By W. A. Bouguerian.

In view of the fact that artists in the past have not portrayed the dental organs promissory of a clear exposition of their peculiar anatomical characteristics, I was determined to have a portrait painted from life demonstrating that the canvas and brush were capable of reflecting the teeth in a truly perfect manner. I knew that it would involve patience in finding a patient having normally positioned and perfectly shaped teeth, but after diligent search I found a patient presenting a typical denture.

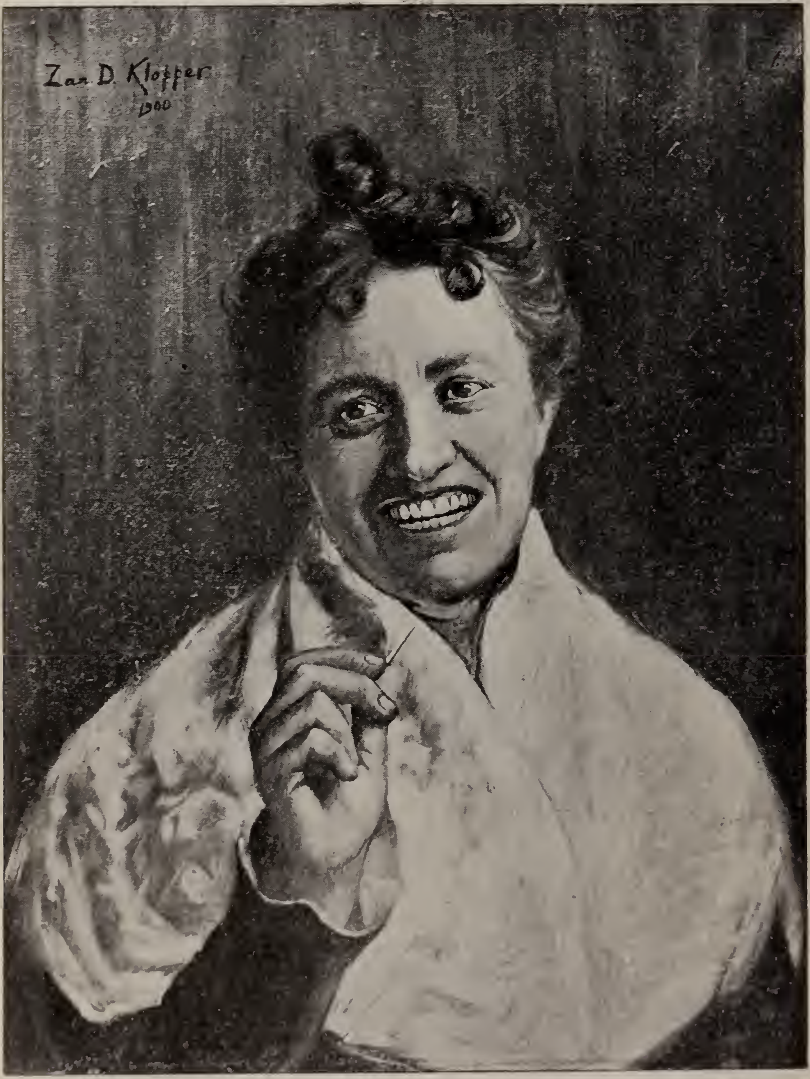
Then I procured the services of the artist Zan Kloepper, one

Eng. 27.
"A Winter Blossom."
By J. Ballavoine.

Eng. 28.
"Cherries and Roses."
By Leon Herbs.

Eng. 29.
"A Daughter of the South."
By Paul Tillier.

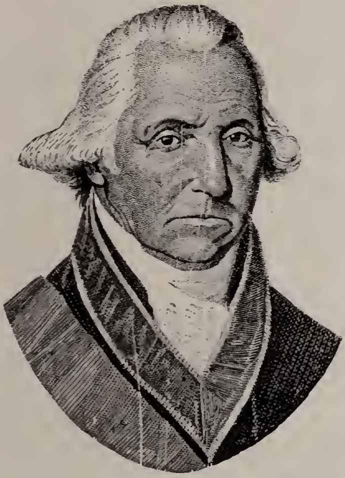
of the best facial artists in Chicago, and after many months of tedious instruction regarding the anatomical outlines of the teeth he completed the portrait which I choose to call "After Dinner." Eng. No. 30.



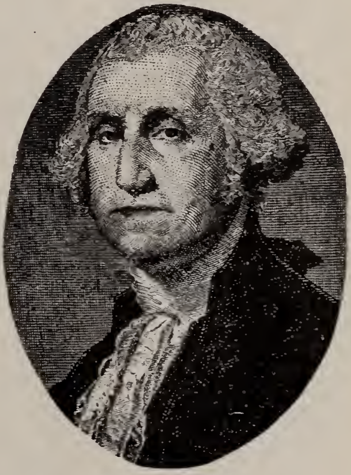
ENG. 30.

"After Dinner."
By Z. Kloepper.

It has been the purpose of the paper to show that the artist would give the world better products if he took at least one course of instruction in a dental college, yet it is not strictly foreign to the intent of my paper to suggest that the dentist, on the other hand, would augment his usefulness to both the patient and the dental society if prior to entering a dental school he would take a freshman course in an art college, or he might prosecute such a course during vacation between college terms. The necessity for manual training and keener digital dexterity must appeal to all who are familiar with the student career. Men who have acquired a knowledge of drawing and who have given some attention to sketch work, readily comprehend the delicate outlines of the teeth. Their judgment for accuracy has thus been sharpened and they can better discern when a filling is properly contoured, and studiously aim to reproduce nature, the true model. Such students' advancement in prostodontia is in a great measure assured, for mechanical dexterity is one of the potent factors of dental prosthesis.



ENG. 31.
"Washington."
By Williams.

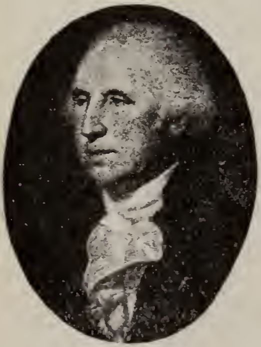


ENG. 32.
"George Washington."
By Stewart.

The dental profession has in the past been graced by artists who adopted dentistry as their life work, and in every instance they have reflected credit on our field of labor. Possibly none attained so pre-eminent a reputation as Dr. C. W. Peale, to whom we owe the discovery of combining platinum with porcelain. In his youth and early manhood he was a portrait painter and later practiced dentistry. He distinguished himself by painting the most authentic likeness of General George Washington.

Of the numerous artists who attempted to portray the great American all failed to give Washington's mouth an easy pose. Take for example the Williams' picture of Washington, painted when he was sixty-two years old. Eng. No. 31. (By permission of Alexander Lodge, A. F. & A. M.)

The popular picture by Stewart also gives this drawn or stiff appearance of the mouth. Tuckerman says of it: "The usual objection of the Stewart Washington is a certain fullness about the mouth which does not correspond with the distinct lines of the frontal region, but this defect was the unavoidable result of the loss of the teeth and their imperfect substitution by a false set." He also might have added that Stewart padded Washington's mouth with cotton and wax while he had him posing. Eng. No. 32.



Eng. 33.
"Portrait of Washington."
By Dr. C. W. Peale.

But what is the secret of success in the Peale Washington? Eng. No. 33. Dr. Peale observed that the mouth was abnormally shaped on account of the illy fitting dentures, and he set to work, carved and molded a full set and sculptured the dentures so as to give a perfect and reposed condition of the mouth and the facial muscles. This set of teeth Washington did not wear except when posing for Dr. Peale. Washington's compeers, relatives and friends have pronounced the portrait painted by Dr. Peale as the nearest resemblance to the true outlines and contours of the face of Washington. Hence the world owes to one of our craft the renown of prosthesizing and picturing our lamented Washington.

Here we have an excellent illustration of what art can do for the dentist and what the dentist can do for art. I would like to speak more of this great man and what his genius wrought in other interesting channels, but my paper is lengthy as it is; but pardon me for adding that the present practitioners could well afford to organize a dental art society and incorporate the name of Peale in both name and example; a society where matters pertaining to art in its broadest sense might be treated by those who are masters of its various specialties.

If I have awakened in any present a deeper desire to observe art and interested you in the broadness of the art side of dentistry, I shall feel fully repaid for my outlay of labor; but I trust that in the coming days of our professional work it will be such that when it shall be portrayed on glass, canvas or stone, it will be lifelike and stand forth as an engrossed blazonry of our noble calling.

PRESENTATION OF NEW INSTRUMENTS AND APPLIANCES BEFORE THE CHICAGO DENTAL SOCIETY, MAY 2, 1900.

By L. S. Tenney, D. D. S., Chicago, Ill.

The onward progress of dentistry and the changing methods of practice are constantly demanding new and improved facilities. With the evolution of ideas in the various departments of our work there naturally arises a demand for materials, instruments and appliances better adapted to our needs. To meet this demand the inventive genius of our profession is ever active, resulting in bringing out from time to time new devices and improvements over those already in use.

To-night I have the pleasure of presenting as many such as I have been able to obtain at the various dental depots and manufacturers of dental supplies, or directly from the hands of their inventors, and while there are a great many things to be presented with which the majority present are no doubt familiar, yet I trust the exhibit as a whole will interest you all.

"PERFECT" AUTOMATIC MALLET.

This is a mallet of new design made by the Consolidated Co. and presenting some excellent features. It is simple in construction and the mechanism is such as to render the regulation of the blow very easy. A turn of the socket-piece enables the operator to adjust the hammer to one-twentieth, one-eighth or one-sixteenth of an inch, according to the strength of blow required.

ENGINE MALLET.

A number of new engine mallets have recently been invented, among them this one manufactured by the S. S. White Company. It is simple, small and compact. It delivers a rapid blow, the strength of which is easily regulated. It is made either for the hand piece or slip joint attachment.

BLACK'S SAW FRAME.

A convenient frame manufactured by the Sibley Co., after a design by Dr. G. V. Black. It has a large hollow handle, through which passes a threaded bolt. A screw cap allows an easy adjustment of the saw, which is then tightened and held securely in place.

GENERAL SEPARATOR.

This separator, made by the S. S. White Company, while not properly coming under the head of recent inventions, is perhaps not as well known as other separators on the market. It is constructed somewhat similar to the Perry separator and is operated in the same manner. The points of superiority claimed are that it is of universal application and is provided with stops or guards which prevent the bars from impinging on the gums.

MOVABLE CLAMP MIRROR.

This is a useful little contrivance consisting of a very pliable small lead rod, attached to which is an adjustable clamp and mirror. In operating upon the lingual surfaces of the anterior teeth in positions requiring the use of a mouth mirror, the clamp is placed upon the bicuspids and the mirror is then adjusted to any position or angle by simple bending the lead rod or sliding the mirror upon it. In this way the work is kept constantly in view, while allowing the use of both hands in operating.

ASEPTIC SYRINGE.

A minim syringe with some improvements over the old style. It has a glass barrel with a flange for finger hold, a platinum pipe and hollow piston.

CROWN SLITTING FORCEPS.

This is a new instrument offered by the Consolidated Co., intended for slitting the bands of gold crowns requiring removal.

They are heavy forceps provided with a knife-blade point which is inserted under the band of the cervical margin. By then closing the forceps, allowing the rim to rest upon the occlusal surface, a straight, clean slitting of the band is accomplished, which permits a ready removal of the crown.

While in many cases a crown may be removed by other means requiring less mutilation, yet in those cases where a slitting of the band is deemed necessary, this forceps seems to be admirably adapted.

PAPER DISK LUBRICATOR.

This is a little idea that will commend itself to every operator. It is a hard lubricating preparation put up in stick form and covered with tin foil. It is very convenient to handle, does away with the spattering and is a time saver.

OFFICE PREPARATION BOTTLE.

A smaller pattern than this has been offered heretofore.

NYMAN'S DEFLECT-EJECTORS.

Invented by Dr. J. E. Nyman, of Chicago. These instruments, as the name would indicate, are used as saliva ejectors and serve at the same time to deflect the tongue. They are made of metal and are heavy enough to remain in position. If necessary at times to hold them in place, they are provided with good sized handles, which may be grasped by the patient or assistant. In short operations on the lower teeth where the dam is not used, the ejectors not only prevent the flooding of the parts with saliva, but at the same time hold the tongue well out of the way of the operator.

CLARK COMPRESSED AIR AND WATER SYRINGE.

This is a recent improvement over the old style. Its main point is simplicity of construction. The parts are so adjusted as to render leakage impossible. It is larger than the old style—another point in its favor.

AMES CEMENT SPATULA.

Designed by Dr. W. V-B. Ames. Probably the majority present are familiar with the spatula. It is very heavy and being made of German silver, is not as readily acted upon by the acid as the steel spatulas. It is thick in the center and tapered down to the edges, enabling the operator to make a thorough mix by a mere rubbing of the cement.

KNOWLES RUBBER DAM HOLDER.

A useful holder with two rubber tipped frames of sufficient length to keep the rubber dam well out of the way.

CARMICHAEL NAPKIN HOLDER.

A little device consisting of two sliding steel bows for holding a napkin tightly against the chin. Invented by Dr. J. P. Carmichael, of Milwaukee.

ANNEALING TRAY.

Consists of a mica disk resting upon a metal frame for use with alcohol flame.

COMBINATION GAS AND ALCOHOL ANNEALER.

Another annealer handled by H. D. Justi & Son. This may be used with either the alcohol lamp or Bunsen burner.

KIRKWOOD'S ANNEALER AND STERILIZER.

Manufactured by the Economy Dental Specialty Co. We find in the apparatus quite an extensive combination. There are nine different appliances and it is rather difficult to conceive how very many more could be conveniently arranged in the same amount of space. At the bottom there is a Bunsen burner; above this a well made cotton holder of ample size; in connection with this there is a waste cotton catcher and also a broach stripper. A little higher there is a support for a hot air syringe. Next comes a good sized annealing tray, and above this a cup containing a quantity of sponge for moistening carborundum stones. Next there is a large cup in which instruments may be sterilized, and at the top a tray for warming gutta-percha. It is certainly a useful combination and is the "multum in parvo" of this exhibit.

CHAMOIS POLISHING WHEELS.

These are polishing wheels made by stitching three pieces of chamois together, of convenient size for use in the dental engine.

ILLUMINATED RUBBER DAM.

This dam, though recently placed on the market, is doubtless so familiar to all present that little need be said of it. One side is covered with aluminum, producing a silvery white reflecting surface.

HARVEY CLAMP.

This is a clamp of novel design invented by Dr. H. F. Harvey. It is for use on molar teeth not fully erupted or those somewhat conical in form, where an ordinary clamp will not remain in position. It is made of piano wire and has four spurs which grasp the tooth at the mesial and distal angles well above the gingival ridge of enamel.

PLUGGER POINTS.

With the introduction of various forms of crystal gold a great many new plugger points have made their appearance, intended specially for the manipulation of this material. This set, consisting of twenty-two points, is made by the S. S. White Company for the handling of their moss fiber. They are very finely serrated and offer a variety of forms, sizes and angles.

CRUTTENDEN'S CEMENT SYRINGE.

A syringe invented by Dr. H. L. Cruttenden for injecting cement into canals in setting crowns and bridges. While this has the appearance of being a very useful appliance, I have never seen it given a practical test. In my own work I have never experienced any difficulty in filling the canal by the ordinary method, although there may be some advantages in injecting the cement in this manner.

KERR'S UNIVERSAL BROACHES.

A set of spiral broaches, these specimens of which appear to be well made and properly tempered.

ROOT CANAL INSTRUMENTS.

For those who indulge in the practice of drilling into tortuous root canals I find that a few new forms of instruments may now be obtained for the work. Beutelrock's, which have been on the market for some time, and Sibley's, of somewhat later design. They are all provided with very long, slender shanks, so that no difficulty whatever will be experienced in breaking them off in the canal.

NEVIUS' ELEVATOR AND FORCEPS.

These are designs by Dr. L. W. Nevius, of Chicago. The elevator is of different angle from any now on the market. The forceps, right and left, upper and lower, have one wide and one very narrow beak. They are intended for removing teeth not in proper alignment, teeth situated buccally or lingually of the arch, where there is insufficient space between the proximating teeth to admit the beak of an ordinary forceps.

CLEMENT AMPUTATING FORCEPS.

This forceps, placed on the market by the Consolidated Co., is intended for cutting off projecting portions of the alveolar process after extraction. One beak is made flat and quite thin to pass inside the process, while the other beak is deeply hollowed with sharp cutting edges. I quote the inventor's words as follows: "This forceps will remove all irregular portions of the alveolar process, leaving a smooth, rounded surface, thereby lessening soreness and promoting rapid healing of the tissues."

JOHNSON'S ENAMEL CLEAVERS.

These cleavers, made by the Mason Co., were recently designed by Dr. A. G. Johnson, of Chicago. They are intended for the removal of enamel from roots preparatory to crowning. For this work they seem to be admirably adapted and of universal application. The set consists of three instruments, all the same size but of different angles. Two are slightly curved and the third a right angle. This latter one is especially useful for trimming the mesio-buccal angle of the upper molars and the mesial surface of the lower molars and bicuspids. They are as light as possible consistent with strength, and being provided with oval points, do not lacerate the tissues.

GREEN'S CROWN DRIVERS.

By Dr. L. O. Green, of Chicago. The purpose of these instruments is, in the words of the inventor, "to drive bands, crowns and bridges into the proper position." There are two instruments—a straight one for anterior teeth and a bayonet-shape for bicuspids and molars. They are made of nickeled steel, carrying a hard leather point, which acts as a cushion and modifies the blow. While I am aware of the fact that many operators do not believe that a band should be driven to place, yet to those who do consider a slight tapping desirable I would say that these instruments appear to be well adapted to the work. They may be used with either an automatic mallet or socket handle.

PROTHERO'S ROOT TRIMMERS.

Invented by Dr. J. H. Prothero, of Chicago. With these instruments, placed in my hands yesterday, I am not thoroughly familiar. Their evident design, however, is for trimming and smoothing the sides of roots after the enamel has been removed. They are thin bladed, made of hardened steel and file cut.

ALLEN'S CROWN HOLDER.

As in the world of invention generally, so in the matter of dental appliances, it frequently happens that we are amused at the very simplicity of some device. Those who are in the habit of whittling a pine stick and inserting it in a gold crown to hold it while polishing, will take kindly to the little Yankee idea. It is nothing more than two pieces of spring steel riveted together and tipped with rubber. After pressing the bars together the crown is placed over them and it is then held firmly in place by merely the outward spring of the metal.

BROPHY BLOWPIPE.

The Dentenax Tooth Co. has just placed on the market two blowpipes invented by Dr. R. C. Brophy, of Chicago. They are of practically the same pattern, one for ordinary illuminating gas, the other for gasoline. The one burning gasoline is made more especially for the convenience of dentists practicing in localities where illuminating gas is not obtainable. The fact, however, that it produces a very high heat suggested the thought to me that it might be used for flowing platinum solder in porcelain crown and bridge work. The controlling valves in these blowpipes are very sensitive. One half a revolution of the wheel produces a variation from the small pointed to the large brush flame as desired.

INLAY MATERIAL.

With the growing interest that is being taken in inlay work a number of new bodies have been placed upon the market. This is a body prepared by the Consolidated Co., as suggested by Dr.

Joseph Head. Having had but a limited experience in this class of work, I shall make no comments aside from the mention of the fact that it is prepared in very convenient form and offers a good variety of shades. There is a high fusing body to be used with platinum matrix and a low fusing body for gold.

ANATOMICAL ARTICULATORS.

Several new articulators have recently appeared, two of which are among the exhibits, the Antes-Lewis and the Gritman. The principles of these articles and the objects sought are too well known to need explanation. The two presented here, though differing considerably in detail of construction, have many features in common. In connection with these articulators should be mentioned the Snow face bow, an implement which locates the base plates in the same relative position to the joints of the articulator that they occupied in the mouth.

MASON ELECTRIC SWITCH.

This is a new switch now being made by the Mason Co. I am not thoroughly familiar with its construction, but the point which impressed me most was the ease with which the motor is reversed.

BROPHY'S INVESTMENT COMPOUND.

This compound, prepared after the formula of Dr. R. C. Brophy, of Chicago, is intended for general investing purposes. The claims made by the doctor are that it is quick setting, a good conductor of heat, contains no low fusing ingredients and will not shrink nor check when heat is applied. Of late I have used this almost exclusively in my own practice and have been greatly pleased with its many excellent qualities.

ASH'S RUBBER BLOCK SWAGER.

A heavy steel swaging device, made by Ash & Sons, for use in porcelain inlay work and swaging metal cusps.

COOLING ATTACHMENT FOR DENTAL IMPRESSION TRAYS.

Manufactured by Doctor A. M. Jackson, of Milledgeville, Ga. When this little contrivance was brought to my attention, I felt that the old theory that "there is nothing new under the sun" had at last been exploded. This is a hollow tray having a water-tight compartment provided with a supply and a waste tube. The tray fits accurately the under surface of the impression cup. After carrying the impression material to place, which in this case is supposed to be modeling composition or wax, a stream of water is forced through the attachment and the material is quickly cooled.

MITCHELL ELECTRIC FURNACE.

Porcelain workers will be interested in this little furnace of Ash & Sons, which certainly commends itself to those wishing a very small and compact one. The muffle is 2¼ inches long, ⅞ of an inch wide and ⅞ of an inch deep. While this is large enough for baking individual crowns, it is rather too diminutive for general bridge work. The manufacturers claim that sufficient heat may be generated in eleven minutes to fuse Close's body. They recommend the use of a rheostat in conjunction with the furnace, so that the current may be controlled and the work heated up gradually. A number of these furnaces are now in use among Chicago dentists and so far as reports have been received are working satisfactorily.

In conclusion, I desire to acknowledge my indebtedness to Dr. H. J. Goslee, Chairman of the Committee on Art and Invention of the Illinois State Dental Society, for his valuable assistance in the collection of this exhibit. I desire also to thank the representatives of the dental depots as well as the individuals for the use of the several articles that have been presented.

Our Duty to Our Patients.*

By Geo. H. Gibson, D. D. S., St. Louis, Mo.

About a year ago Dr. Edmund Noyes, of Chicago, read a paper on "Professional Ethics" before the Odontographic Society of that city, and in the discussion Dr. C. N. Johnson made these statements: "The first duty of the professional man is to his patrons. His next duty is to his profession and the members of his profession. His next duty to himself and his family." And then, not many months ago, this statement was made in this society: "We all do work that we know will fail because there is money in it."

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*Read before the St. Louis Dental Society.

These two statements set me to thinking, and I wondered whether we were really a profession or only a business—a trade. I am glad that I have been given this opportunity of presenting some thoughts along these lines for your consideration. I hope that the discussion will be free and cordial, not alone lifting us to a higher professional plane, but later resulting in real benefit to those we serve.

The first thought I want to get before your minds is the relation we sustain toward the community. Are we there in a purely commercial spirit, trading on the ignorance of the public, or do we stand as the representatives of a liberal profession, serving humanity for the good we can do? I desire to quote from Dr. McManus, of Hartford, Conn., where he says: "Sixty years ago there were a few men practicing in this country who could justly be called professional men. Among the number were several who had a medical education, and they with others were the organizers of the first dental society and dental college. The first circular issued by that college was to this effect: That hereafter dentists ought to be and should be liberally educated and skillfully trained to become competent dental surgeons. This was the first movement made by practicing dentists to elevate the standard of dental education and practical requirements, and the college faculty was the first to give notice to the public that in future educated dentists would be entitled to rank as professional men, and their calling raised to the dignity of a profession. Every man in the practice of dentistry since the first dental college was established decided for himself when he commenced to practice whether he wished to be considered a professional man by the community where he located. Whether dentistry was to be considered a profession or a trade depended entirely on the course pursued by each practitioner. There have been, and probably always will be, quacks and pretenders in the medical profession, and pettifogging "shysters" in the legal profession; but they are not regarded as professional men, however much they may claim to be so considered. They may be, and often are, men of some skill and education, but their manner of conducting their business bars them from fellowship in professional societies. When men associate together in any vocation they consciously or unconsciously subscribe to a code of ethics."

The first article of our code as adopted by the American

Dental Association, relates to our duty to our patients. I believe for our mutual good it would be wise to quote in its fullness this article:

Section I. The dentist should be ever ready to respond to the wants of his patrons, and should fully recognize the obligations involved in the discharge of his duties toward them. As they are, in most cases, unable to correctly estimate the character of his operations, his own sense of *right* must guarantee faithfulness in their performance. His manner should be firm, yet kind and sympathizing, so as to gain the respect and confidence of his patients; and even the simplest case committed to his care should receive that attention which is due to any operation performed on living, sensitive tissue.

Sec. 2. It is not to be expected that the patient will possess a very extended or a very accurate knowledge of professional matters. The dentist should make due allowance for this, patiently explaining many things which may seem quite clear to himself, thus endeavoring to educate the public mind so that it will properly appreciate the beneficent efforts of our profession. He should encourage no false hopes by promising success where in the nature of the case, there is uncertainty.

Sec. 3. The dentist should be temperate in all things, keeping both mind and body in the best possible health, that his patients may have the benefit of that clearness of judgment and skill which is their right.

This was adopted in 1866 and has never been materially changed.

In the first paper referred to Dr. Noyes makes this statement: "In business transactions (and in this they do not differ from professional services) it is expected that all the parties shall receive benefit. If this is not the ordinary and expected result the business is not legitimate nor honorable; but in business men are supposed to meet on equal terms, both parties being sufficiently good judges of the transaction and each expected to look after his own interests.

On the contrary, a professional man and his patient or client do not meet on equal footing, but it is distinctly understood that very important interests and welfare are confided to the professional man, the other party being comparatively helpless and unable to judge if the measures adopted are such as will best serve his needs."

I believe enough has been said from an ethical standpoint, and that we can now turn to the educational side of our subject. The dentist is a doctor, and "doctor" means a teacher. If we would do our whole duty we must teach our patients about their teeth and their surrounding tissues. I am inclined to think that we are apt, as we grow into a busy practice, to give our patients a sitting and at that time hurry through with the needed operation, and then "next" in action if not in word; and so grind through the days and weeks of our practice without taking time to properly train our patients along the lines of preventive measures as will best preserve and keep their dental organs.

The dental profession has advanced so rapidly, scientifically and mechanically, that we have not taken time to think about the public, and not the least important, our numbers are increasing rapidly. Six years ago when I came here there were about 160 dentists, and now there are something like 300. Has the public been educated correspondingly? Dr. James W. White in an editorial in the *Cosmos* had this to say on this subject: "If, as has been said, the real groundwork of national health is education of the masses, so an intelligent comprehension of the varied functions of the mouth and teeth, a better appreciation of the causes of deteriorations and of the means by which it may be counteracted is essential as the groundwork of a much needed improvement in the dentures of mankind. Dental colleges may multiply and each recurring year send out their hosts of graduates, legislatures may pass laws regulating the practice of dentistry, and thousands of operators may be kept busy in the work of repair, and still the deterioration will go on, and still a vast amount of preventable disease will make its ravages.

The remedy is the education of the people. They must be made to realize the priceless value of their dental organs; fathers, mothers and children must be made to understand that neglect which involves the loss of teeth is inexcusable and suicidal. How to disseminate such knowledge is a problem which may well engage the attention of dental organizations."

And now as to the solution of this problem, let me say that I have no confidence in the public press. If the subject could be properly presented by the teacher in the public schools, I am sure that much good would come from it; but the present available method and the one we must always largely depend upon is the personal work of the dentist. I believe our colleges could do much in this direction by having a short course of lectures on the subject of ethics, and the proper methods of training patients. The time ought to be long gone by when we will permit our patients to dictate what we shall do for them regardless of whether it is the best for them or not. I am reminded of the story told of Dr. Bonwill at the beginning of his practice. With unpaid rent, and board bill overdue staring him in the face, yet he overcame the temptation and had the courage to say, "No, madame, I can't extract that tooth; if it must be done you will have to go elsewhere. My conscience would never cease to condemn me for doing that which I know is not for your best good." If all the dentists were like that you would mold the public mind ten times as rapidly as we are now doing.

One more thought and I am done. I believe our patients would heed our advice better and have more confidence in us if we kept in closer touch with them. I mean by that, that we ought to see our patients regularly and that the time of their coming should not be left to them. By getting their permission at the last sitting we could notify them by card just when to come. This method is not new but has been carried out very successfully by the dentists in some of our eastern cities.

Finally the proper effort on the part of the members of the dental profession, devoted to the bringing up of the public to a full knowledge of their dental conditions, will result in more tractable patients, better dentists, and in the elevation of the professional standard.

EXTREMES IN BRIDGE WORK.*

By M. C. Marshall, D. D. S., St. Louis, Mo.

Extremes in bridge work might require many pages if the whole subject should be presented, as there are many varieties that border on the quicksand of uselessness; stronger still will I make it, and say injury.

The day our worthy president asked me for the subject of a paper I had thoughtlessly promised him, a gentleman, a cast of whose mouth I show you, came to me and asked to have two bridges made to supply the missing teeth, as shown by the cast.

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*Read before St. Louis Dental Society.

You will observe that the superior second bicuspid and first molar have been lost on both sides; also the third molar on the left; you will also notice that the space has so closed on the left side that it would about admit a medium sized molar, and on the right side the closure has been greater, leaving space only wide enough to admit a bicuspid. The adjacent teeth had some very small fillings in them that had been in a great many years and are absolutely perfect. He lost these missing teeth some fifteen years ago; experienced no difficulty whatever in masticating, and never had any indigestion.

I asked why he wanted bridges. He said he did not care for them, but a dentist had told him about six weeks previously that he ought to have them. I asked if he knew how the dentist proposed doing the work. He said "Yes," and went on to relate that the four adjacent teeth were to be cut down and gold crowns made for them and the missing teeth were to be soldered in between. I shuddered. To be certain I had him make the statement again. I declined to do the work on those lines and suggested other means.

Now the point is, is such work good or bad practice? I hold emphatically that it is very bad practice, but as I may be wrong, I want your candid opinions regarding this identical case. I would have no misgivings of my opinion regarding it, if the gentleman who recommended the work being done as stated was not a prominent man, and though I did not, nor do I now know who it was, I might be opposing some one who can teach me about bridge work. Furthermore, I verily believe that such work as this has had much to do with the disrepute placed by many upon one of the greatest blessings, where it is indicated and properly constructed, that partially edentulous mankind can have.

Many other cases crowd themselves upon my mind, but as I said, I will confine myself to this one and ask you not to be equivocal, and if you do not endorse such practice give it as strong condemnation as I think it richly deserves, for it seems to me it is time such things should not be done.

I do not wish to be understood as posing as a critic, but rather as a student of the subject, but one having a few ideas of a pronounced character that may need revising. Yet to me, the mutilation of these teeth, in the case presented, for so little purpose, seems appalling.

REPORT OF THE COMMITTEE ON DENTAL SCIENCE AND LITERATURE.*

BY A. W. HARLAN, M. D., D. D. S., CHICAGO, ILL.

During the year just closing the output of strictly dental works has not been so large in the number or variety of books as in former years. We note with pleasure the renewed attention given to works on pyorrhea alveolaris.

We have had the opportunity of reading the revised work of Henry S. Nash, D. D. S., of New York, on "Chronic Alveolitis." The first edition of this was issued two or three years ago, but the author suppressed it, and we now have his more mature work in Vol. I., which has been received since our last report. This work is not destined to become popular, as it is too involved in its phraseology and too rambling in its nature to become authoritative. One must be endowed with great patience to struggle through it. There is not a word of treatment in it, and for this reason alone not many will be tempted to purchase it. I will refer you to the reviews of it published in the *Dental Cosmos* for October, 1899, and May, 1900, for the estimate of Dr. E. C. Kirk and for my own review of the work. "Interstitial Gingivitis," by E. S. Talbot, is on the same subject, very copiously illustrated. This is a handsome work and will repay perusal for many reasons. The author has labored hard to present the subject in an attractive style, and simply because we do not subscribe to all the views of the author is no reason why it may not be profitable reading for you. The chapter on treatment is very simple, and it will not be difficult to follow it. It keeps the subject before the profession, and that is always a good thing.

A. H. Thompson's little book on "Comparative Dental Anatomy," noticed last year, is intended for students, and we can cheerfully recommend it as *multum in parvo.*

Another work for students is that of Vernon J. Hall, "Chemistry and Metallurgy" for dentists. We incline to the opinion that Mitchell's work, "Dental Chemistry," and that of J. D. Hodgen, "Metallurgy," taken together, will be more valuable for the practitioner, but this may be as valuable for a student.

"Dental Microscopy," by A. Hopewell Smith, London, is one of the best books for students we have seen in a long time. It is reliable and trustworthy.

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*Read before the Illinois State Dental Society.

"The Practice of Dental Medicine," by Geo. F. Eames, is a good book, and it is a safe guide for the dentist.

R. Ottolengui's work, noticed in our last report, on "Methods of Filling Teeth," is quite up to date, and a careful perusal cannot fail to benefit the reader.

Pedley's "Hygiene of the Mouth" will prove of value to those who are somewhat unfamiliar with this subject. Dr. Cruet's book on the same subject in the French language is far superior to it as a guide to the reader.

Witzel's work, "Filling Teeth with Amalgam," presents many novel ideas, but as it is printed in German many of my auditors will not be able to read it.

Sisty, "Terminology of Dental Science," will be valuable to bibliophiles, but it is in German, also.

W. A. Purinton published a book, "Review of Recent Legal Decisions Affecting Physicians, Dentists, Druggists and Public Health," which to the book collector will prove of value.

C. R. Hambly has published a large volume called the "Practice Builder," which for unmitigated rubbish we have not seen the equal in many a day. The practice builder is good character, correct habits, definite knowledge, perseverance and industry, combining with these studious habits, and no clap-trap affectations of superiority over your neighbor or competitor. There are fewer new editions of old books to record than in former years. One reason for this is the excellence of our periodical literature; this is growing to be vastly superior to that of former years. The papers read before societies are of increasing worth and they are being more carefully prepared. Much original work has seen the light of day in the *Dental Cosmos*, *International Dental Journal*, *Items of Interest*, *Ohio Dental Journal*, and THE DENTAL REVIEW, *The Pacific Medico-Dental Gazette*, and other journals in this country. *The Dental Record* (London), *The British Dental Journal*, and *The Journal of the British Dental Association*, and *The British Journal of Dental Science*, all have published matter of much merit in the past twelve months. *L'Odontologie* and other Continental journals, especially *Vierteljahrschrift für Zahnheilkunde* and *Parreidts. Deutsche Monatschrift für Zahnheilkunde* are filled from month to month with excellent reading matter. Those of you who do not see foreign journals are not sensible of what you lose in not seeing them. For a few dollars—say ten or twenty—you can subscribe for two English, one French and two German journals in addition to three or four published in the United States, and about two medical journals added will give you all the reading matter you will want. You can cover the whole field by a wise selection and if you only read them what well stored minds you would have —say in 1902.

NEW PERIODICALS.

The Dental World, Macon, Ga., revival of *Welch's Dental Monthly* one new journal in Australia, one in France, ditto in Italy, revival of one in Cuba, and two new ones in Japan.

MEDICAL BOOKS.

Every year you should purchase two or three medical books. Cushny's "Materia Medica, Pharmacy, etc.," is a good one; Bruce's " Principles of Treatment," applied to practice is an excellent work for any young or old dentist.

Squibb's " Ephemeris " is worth having and you can get it by sending your card to E. R. Squibb & Son, Brooklyn, N. Y. " Surgical Pathology and Therapeutics,' 'by J. C. Warren, is one of the most recent and complete works on the above subject, and it is particularly rich in *regional bacteriology*.

SCIENCE.

Is art a part of science or only the twin sister? We are so accustomed to render tribute to a production when we do not understand it, that many times subjects of essays or matter contained therein are believed to be scientific when by definite rules for gauging only a small grain of science can be found. No matter the work of the various authors on orthodontia and porcelain work had written so well that whether their work may be summed up as science or art it is good for any professional digestion. In the field of bacteriology the work of Vincentini and Goadby and Choquet is all excellent and epoch making. One contribution by Audy on sterilization is worthy of note. He found that 1 to 100 borate of soda, 1 to 100 biborate of soda, carbonate of potash 1 to 100 made in menthol water and carbonate of soda 1 to 100 with menthol water and 35 parts of distilled water, 15 parts neutral glycerine with menthol water were all efficient sterilizers at 102° to 105° centigrade in a few minutes. Infectious matter from caries and from cleaning teeth and roots, also from the tongue and mucous membrane were used. First organisms were cultivated from mucus to show their presence and then after sterilization attempts were made to cultivate with no results of growth. We are so accustomed to read about methods of sterilization that I refer you to this paper in *L'Odontologie*, Feb. 28, 1900.

There is a growing use of lithia water in the treatment of stored up urea, uric acid and urates. The natural waters are preferred and about one and one-half quarts should be taken daily in small quantities one hour after eating and at least one-half hour before eating again. If this is continued, with the addition of one-half to one pint of pure water, the system overloaded will quickly respond to the influence of such solvents.

During the twelve months many problems relating to education have been presented, but none of a strictly scientific character. Some of the future work of bacteriologists will relate to the clearing up of the pyorrhea problem and the causes of erosion with amplification of the role microörganisms play in the production of caries in the teeth. Some work is to be noted in therapeutics, but not much of permanent value. At present experimenters appear to be at a standstill in chemistry and purely pathological questions, only slight progress being perceptible.

During the next year, indeed, in the next few months, the papers to be presented to the International Medical Congress and the International Dental Congress at Paris may bring us new light on several vexed questions, but we are unable to anticipate them.

In conclusion, it must be conceded that the outlook for advancement is hopeful, as all the powerful engines of progress are being fully equipped for experimental work, not alone in dental, but in medical and scientific circles throughout the world. There is hardly a school of any pretensions which does not have a culture and experimental laboratory. How different from fifteen years ago! International differences are not so stiff and unyielding as of yore, for France, Germany, England and Japan have sent committees to this country to investigate our methods of teaching, which is an evidence of interest we cannot too highly appreciate.

PYORRHEA ALVEOLARIS.*

BY A. H. PECK, M. D., D. D. S., CHICAGO, ILL.

What is pyorrhea alveolaris? I wish I could tell you. If I were able to make a statement on this phase of the question that would leave no opportunity for future doubt in your minds, I would at once become even greater than Dewey, who, after "studying the subject carefully," has come to the conclusion that the exactions of the incumbent of the office of president of the United States are but "simple."

However, we have men in our profession who would have us think that there is no longer room or necessity for doubt either as to the etiology, the prognosis or the treatment of the diseased condition under present consideration. They are very firm in their convictions, positive in their statements, and above all things else, irrevocably unwilling to admit that there is any possibility that they are in any wise mistaken in their conclusions. And the remarkable feature in connection with all this is that their individual teachings are so widely at variance. Unlike the "lily of the valley," they seem to toil much and they spin profusely.

We find one class being satisfied to consider as purely local conditions all the pathological changes occurring in the parts and accompanying a deposition on the surfaces of the teeth of either salivary or serumal calculus, differentiating between the two by use of the expressions "ptyalogenic calcic pericementitis" and "hematogenic calcic pericementitis" respectively; while the cause of "true pyorrhea," as they term it, the symptoms of which are so different, and the cases of which do not yield to the usual methods of local treatment, is ascribed to the accumulation of uric acid salts upon the apices of the roots of teeth.

In support of this theory the author presents the results of analyses of deposits found upon the ends of roots of teeth. Because uric acid was found in the majority of the analyses made, the, to me, illogical conclusion was formed that uric acid in the system is the cause of "true pyorrhea alveolaris," and that the main energy in the treatment must be by way of eliminating from the system this accumulated monster—uric acid. Is it unreasonable to suppose that had these deposits, taken from the roots of teeth, been subjected to proper tests for the purpose of discovering the presence of other substances, the investigator would have been rewarded with success? Such tests have been made and such substances as iron, lead, mercury, sulphur and manganese have been found present in varying quantities.

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*Read before the Illinois State Dental Society.

Would not the logic of the one who would ascribe pyorrhea alveolaris to the presence of any one of those substances be just as sound as that of the other who has ascribed it to another substance?

Another writer, almost in his opening sentences, states that "the exciting cause of pyorrhea alveolaris," which latter he describes as a "purulent discharge from the alveolar region," "is invariably some *local* irritation, which, not being removed, sets up a condition of inflammation which prevents nutritive repair of the diseased pericemental tissue." Then he divides the "disease," as he calls it, into "two general classes:" "One where the *exciting* cause is practically the only cause of the disease, and which makes the"—now he says "*condition*," instead of using the word "disease"—"purely a local trouble," and adds, "this form may be called *pyorrhea simplex* in contradistinction to the other class, *pyorrhea complex*, where there is a predisposing cause back of the local irritant." A little farther on in his article he says under the head of *Pyorrhea Complex:* "Although in all forms of this disease our chief duty is to keep the mouths of our patients free from any exciting causes and to reduce all conditions of inflammation, still, where there is a predisposing cause which in itself is productive of the local inflammation and the irritation against which we are contending, this predisposing cause in such cases becomes *the* cause." This is a direct contradiction of his first statement, as his language is worded. What does this mean? Simply this, that he has formulated a theory which no doubt to him seems to be a plausible one, and as we shall presently see is in a way a most remarkable one. Having formulated the theory he makes a bid for its acceptance by placing it before us in language that is necessarily contradictory because of the remarkable character of his doctrine. In answer to my query, "What does this mean?" remember my opening statement, that I am dealing with a subject about many phases of which I know nothing, and with no disrespect to any one, I believe there are many others who know just as little about these things as I do. When one knows his subject, when he is certain that his theories are correct, it is never necessary that contradictory language be used in presenting them.

Farther on in the article above referred to the writer states in effect that an individual suffers with a distinct form of pyorrhea alveolaris, accompanied with its own individual set of symptoms, to correspond with the systemic disease with which he may be afflicted, as "gouty pyorrhea," "diabetic pyorrhea," "tubercular pyorrhea," "anemic pyorrhea," "pregnancy pyorrhea." And to make a very long story short, toward the latter part of the article he makes the following remarkable and sweeping statement: "It has been my aim to call your attention to the fact that, leaving pyorrhea *simplex* aside, the forms of pyorrhea *complex* that we may meet are limited only by the number of ills that humanity is heir to;" and adds that "attention is invited to the fact that each form of pyorrhea complex presents clinical symptoms so separate and distinct that they can easily be recognized by the observant dentist."

According to this, if a person be afflicted with softening of the brain he would necessarily suffer with a form of pyorrhea, the manifestations of which would correspond with the systemic affliction. If a person be afflicted with fatty degeneration of the heart, he would necessarily suffer with a form of pyorrhea, the manifestations of which would correspond with the systemic affliction. Who can imagine what kind of manifestations these would be? Again, if a person be afflicted with chronic diarrhea he would necessarily suffer with a form of pyorrhea, the manifestations of which would correspond with the systemic affliction, and what awful manifestations these would be.

I do not thus refer to these phases of the article for purposes of ridicule, but to show the fallacies one indulges in when he presents such theories and makes such statements as the only reliable ones in connection with a subject of this character.

Another prominent writer, who calls this affliction "interstitial gingivitis," regards the causes as almost entirely local in character, and agrees that various systemic disorders serve to aggravate the local pathological manifestations.

The theories of this author as presented to the profession in book form of recent issue and accompanied with extensive and beautiful illustrations are well worth the careful perusal of all.

Another up-to-date writer regards pyorrhea as purely bacteriological in origin, and claims jointly to have discovered the bacilli of pyorrhea alveolaris. At the same time he has always claimed to effect marvelous cures by purely mechanical means.

It may not prove uninteresting to refer briefly to the ideas of prominent men, from the early times, as to the cause of pyorrhea alveolaris.

In 1740 H. A. Fauchard recognized this affliction and described its essential features, but offered nothing as to its cause. In some of the medical dictionaries you will find pyorrhea alveolaris referred to as Fauchard's disease.

In 1778 M. Jourdain regarded this affliction as of scorbutic origin.

L. Koecker, in 1821, discussed the disorder in a general way as the devastations of the gums and alveolar processes, but advanced no specific theory as to its cause.

In 1860, Marshal de Calve considered the disorder as hereditary.

Magitot, in 1867, considered systemic disorders, such as gout, rheumatism, albuminuria, diabetes and anemia, as having an indirect influence in the production of the disorder.

In 1870, serumal calculus was mentioned in this connection by a Mr. Brown.

In 1875, John M. Riggs described the malady as a suppurative inflammation of the gums and alveolar process. Not infrequently do we hear this trouble spoken of as Riggs' disease.

It is my belief that in all instances where the pathological conditions obtain, commonly referred to as pyorrhea alveolaris, that the presence of pus is nothing more nor less than a condition superinduced by the various pathological conditions that always precede pus formation in any portion of the system. Inflammation of the soft tissues about the roots of teeth is a condition of this pathologic state; as is swelling of the soft parts; recession of the soft tissues; looseness of the teeth; the presence of calcareous deposits; the presence of pus; and the pus present is there as a result (to take the processes in their order) of the disturbance of the local parts by the irritant, whatever it may be, the inflammatory process following, being accompanied by the infiltration of the surrounding parts with the characteristic inflammatory exudates, this in turn becoming infected with pus-forming microörganisms, thus inaugurating the process of fermentation, which results in liquefaction of these various elements involved, this liquid constituting pus. Thus you see the pus is present only as a natural result of the pathological conditions through which the parts have passed. When we remember that *pyo* is of Greek origin, signifying pus, and that *alveolaris* is of Latin origin, meaning a small hollow or cavity, pertaining to or resembling alveoli or the sockets of teeth, what right have we to use the expression "pyorrhea alveolaris," to give name to a specific disease? My answer is, none, save custom; and remember that custom is not always a safe guide to follow.

What, then, shall we call this condition, or disease, or whatever it is? Some years ago an author of world-wide reputation classified the diseases of these parts, having their origin at the gingival margin, as *gingivitis*, *calcic inflammation* and *phagedenic pericementitis*. Up to the present time no one, to my mind, has suggested a better classification. Gingivitis, or inflammation of the soft parts immediately about the necks of teeth, results from many different causes. These causes may be local or of systemic origin. Most frequently they are of a local character. The accumulation of calculus, either salivary or serumal, is a very frequent cause. The accumulation and retention of microörganisms and particles of food and other foreign material, which should not be permitted to remain about these parts, constitutes a frequent cause of gingivitis. An acid condition of the mucus which is exuded from the free margin of the gums is a not infrequent cause. Injury to the free margin of the gums not infrequently induces severe inflammation. I might occupy much time in enumerating local causes of this pathological state, but it is unnecessary. Among the causes which may be said to be of systemic origin are in a general way to be found in the presence about the necks of teeth of irritating drugs, which have been taken internally, carried to different parts of the system by the circulation, and portions of which are eliminated through or by the peridental membrane. Drugs or materials which perhaps most frequently disturb these local parts in this way are mercury, lead and phosphorus. When an individual is suffering from systemic mercurialism, or plumbism, or phosphorism, and the local parts in question become diseased in the manner as outlined above, and pus forms—which latter element is necessary before we have any right to refer to the diseased condition as "pyorrhea alveolaris," I contend that the presence of these various poisonous drugs or elements in the system cannot properly be referred to as the direct cause of that individual being tormented with pyorrhea, as we call it—an indirect cause, certainly. The local parts being irritated by these poisons, the irritation long continued, inflammation and infiltration follow, infection, fermentation and liquefaction occur in their natural order. If these poisons in the system were the direct cause of pyorrhea, is not the statement a logical one that individuals who are thereby afflicted would suffer a spontaneous breaking out, so to speak, of pyorrhea in the mouth? That they do not in many, many cases, cannot be disputed; and, on the other hand, many who have never been afflicted with these constitutional ailments have suffered with "pyorrhœa" it its most virulent form. This statement is such a patent fact that I need take no time to relate statistics, or to cite cases in its further support. Hence *gingivitis* (inflammation of the gingivæ, induced by these irritating substances, whether of local or of systemic production) is the name of the disease. The presence of pus is only a condition, and does not give name to a specific disease.

Calcic inflammation. A pathological condition of the parts about the teeth with which you are all familiar, a diseased condition induced by the presence of calcareous deposits, whether of serumal or of salivary variety. These deposits, especially the salivary, possess peculiar properties that are invariably destructive to soft tissue. It is an axiom, or should be, for clinical experience and observation make it such, that the soft parts about teeth cannot remain healthy and retain their structural form when in contact with salivary calculus. Thus let the breaking-down of these tissues under these circumstances, the presence and the spread of inflammation, the looseness of the teeth, and the presence of pus, etc., be spoken of as conditions, naturally brought about by the workings of the disease, calcic inflammation.

Phagedenic pericementitis. A disease of the parts about the teeth, especially the peridental membrane, that is peculiarly characterized by the formation of narrow pockets along the sides of the roots. The etiology of this disease is not definitely settled. As we have been told by the author above referred to, it is very likely the result of the action of a specific form of microorganism. This theory certainly seems a plausible one, when we understand the somewhat remarkable characteristics of the disease. Pockets may be formed to a great extent without the show of any inflammation, or any appreciable looseness of the tooth, or any recession of the gums, or any accumulation of serumal calculus, and without the formation of any pus; while perhaps, in the majority of cases, the reverse of these conditions obtains. In these facts do we find a strong argument in favor of not calling the disease *pyorrhea*, for when pus is not formed the disease *phagedenic* is present just the same, and when pus is formed it is present as a natural result of the workings of the disease, together with its complications, only a condition.

True, there are cases of "pyorrhea" that are obstinate and persistent. In spite of all that can be done by way of treatment in a local way pus continues to flow; not infrequently the pockets about the teeth have developed to a considerable extent. There are apparently no accumulations of serumal calculus on the surface of the cementum, in fact nothing is apparent of a local nature to which might be ascribed the responsibility of a continuance of the destructive process and of pus formation; yet there is present every local indication of severe irritation, the gums are inflamed, probably swollen, the margins everted and more or less denuded of their epithelium, and they bleed on the slightest provocation. It would seem that those who advocate a primary systemic cause for "pyorrhea" have a just foundation for their doctrine in connection with such cases as cited above. Whether they are right or wrong I shall not presume to say, and no man is justified in making a positive statement in this connection one way or the other. Sufficient proof of a positive nature has not been adduced from the experimental work, and from the investigations that have thus far been prosecuted, to warrant an inflexible stand being taken on one side or the other. When one reflects that such cases as here last described are found in the mouths of individuals who, because of inborn idiosyncrasy, are especially susceptible to the irritating effects of such poisonous drugs and elements as above referred to, and until something of a positive nature in this connection is produced, is not the following worthy of some consideration, namely, that there is in the system of that individual some of the poisons referred to that are being carried about in the circulation, and are being partially eliminated by the peridental membrane? The gums at their margins being thus irritated and inflamed, infection naturally occurs and pus forms. This seems to me a much more plausible theory than that all the local conditions spring up of a spontaneity and inevitably because the general system contains poisonous elements.

Of the diagnosis of the various local diseases attended with a flow of pus I need say nothing. These constitute one realm of pathology with which the dentist has to deal that diagnoses itself. Of the prognosis we are by far less certain. The probability or improbability of recovery depends upon many conditions. The extent of the destruction of the tissues involved, the ability of the operator to diagnose and successfully remove the local causes of irritation, and his aptness to recognize the presence of any systemic elements that may be producing local irritation; also his ability to recognize the various lines of therapeutic action called for by the various pathological conditions of the parts, together with his ability to select for use the proper medicinal agents to supply these needs; also the age and physical condition of the patient, and his or her diligence in properly caring for the parts after treatment is administered.

Treatment of these affections depends entirely upon the nature of the cause or causes that serve to continue them, and upon the various conditions, both local and systemic, that present in each individual case. In dealing with this phase of the question I deem it unnecessary to indulge in a detailed account of methods of procedure or of medicinal agents as means to be applied, but rather will consider the *principles* involved in the treatment. If calculus is the exciting cause of the disease, and there is no considerable destruction of tissue and no systemic complications, a thorough removal of the deposits is usually all that is necessary to effect a cure. If the patient be advanced in years and physically feeble, the local use of stimulating antiseptics will assist materially. If the exciting cause be an acid mucus, or an abnormal condition of the saliva, or an accumulation and retention of microörganisms and other foul matter, the cause must be corrected—must be removed. In the first instance alkaline solutions must be used in a local way. If the destruction of tissue is considerable and deep pockets have developed, pus is flowing freely, the gums are inflamed and engorged with blood, but no systemic complications, the treatment indicated is as follows: First, a thorough removal of the local exciting cause, whatever it may be. Appropriate germicides must be used freely in the pockets, and when I say freely I mean diligently as well. A side thought in this connection which may be of interest: After having thoroughly removed the deposits and cleansed the pockets with germicides, completely washing the pus away, and perhaps repeating these same operations two or three times, the patient returns, and there is no more calculus present, but pus continues, some are puzzled to know why this is so. Let me refer to a beautiful little illustration in this connection used by Dr. Black in his writings. When you were boys and used to hoe the corn, and the potato patch, and weed the onion bed, you effected the destruction of all weeds in sight at the time, but in a few days you would be somewhat surprised to see as many more weeds growing in those patches, and in your childlike simplicity would wonder where they came from. With your hoeing you destroyed the weeds in sight, but you could not destroy the seeds that were lying dormant within the soil, only awaiting a favorable opportunity to spring forth and produce another crop of weeds. When you thoroughly cleanse the pus pockets with germicides, you do away with the pus and you destroy the germs that are visible, so to speak, but you do not effect the destruction of the spores that have insinuated themselves into the surrounding tissues, the latter frequently being completely studded with them, and which continue to come forth and cause pus formation. Hence the necessity of continued use of germicides in these cases.

The use of antiphlogistics to control the inflammation is essential. This form of treatment will mainly be local. However, not infrequently do systemic agents in this connection assist materially. Agents administered internally that assist in slowing the blood current, thus preventing, to a degree, an undue quantity of blood flowing to and through the affected parts, are of material assistance.

Astringents are also indicated in the treatment of these cases. Agents that cause contraction and condensation of the tissues, and also assist in lessening the secretions. These are to be used locally. I believe no special advantage will be had from the use of remote astringents, or those to be taken internally and which act upon different parts through the medium of the circulation of the blood.

When this disease, so termed, is aggravated or indirectly excited by systemic disorders, one cannot hope for best results, or even satisfactory results, unless these disorders are recognized and properly treated.

One's habits and diet are especially important factors in connection with the successful treatment of these disorders. An individual of sedentary habits—much in doors, little exercise—and an indulger in wine, tobacco and a meat diet, is not a favorable subject for successful treatment. His habits should be exactly the opposite—plenty of exercise in the fresh air is necessary; the diet should be simple but nourishing; liquor and tobacco should be indulged in sparingly, and the process of elimination in all its phases should receive proper attention. Saline cathartics and thorough flushing of the system with water are essential.

Last, but by no means least, the teeth should be thoroughly and persistently exercised. I believe vigorous exercise of the teeth and the surrounding parts by chewing hard food is of much more value by way of stimulating and strengthening and hardening the soft tissues involved than has been ascribed to it in the past.

AN ADDRESS DELIVERED BEFORE THE FACULTY AND GRADUATING CLASS OF THE DENTAL DEPARTMENT OF THE UNIVERSITY OF OMAHA, NEB., MAY 3, A. D. 1900.

BY JUDGE JAMES H. MACOMBER.

Mr. Chancellor, Dean, Faculty and Graduates:—I am pleased to address you upon this happy occasion, and trust I shall say something that will be of benefit to you after we shall have gone out from this most pleasant banquet.

You of the graduating class have met together in a final exercise before you go out among your fellow-men to enter upon an important life work, and into a profession honored by your citizens and loved by the distinguished instructors who so ably uphold the name and culture of the Dental Department of the University of Omaha.

The profession of dentistry as practiced in these modern times is one of the triumphs of science and art, and speaks well for those who have carried to such perfection its great work and teachings. But a man's mouth has always been an important object with him, and history tells us that thousands of years ago the dentist was in the land of the living; the people of ancient Greece and Rome received help from the dentist, and artificial teeth have been found in the excavations of Egypt and have been taken from the mouths of mummies, embalmed before Abraham tended his flocks, but the art was lost during the lapse of the ages, and was revived and improved at a very late period in modern times.

The medical profession has forged ahead in the estimation of the world, and has intrenched itself in the great public institutions of the civilized world, through the unceasing efforts of its members, and now holds valuable and lasting position wherever mankind is collected in numbers. And in having my attention called to the fact I was painfully surprised to learn that no law exists for having dentists in the army, navy, and other public institutions, where the especial knowledge and practice of dentistry is essential to health and comfort.

This neglect is certainly in a great part due to a want of information of the public generally, and it is a duty to yourselves and to the great profession to which you belong, to enter most energetically upon a course that will accomplish the successful placing of a dentist at every public post and institution where his professional knowledge is essential to the health and comfort of those in public institutions, or public control.

Gentlemen, among the misty traditions of the middle ages is one of curious import concerning the capitol building of ancient Rome. The legend runs smoothly in the translation of Marion Crawford, thus: "In the tower, too, was preserved the mystic mirror of the world which instantly reflected all that passed in the Empire, even to its furtherest limits. Below the tower, also, and surrounding the golden palace, there were as many statues as Rome had provinces, and each statue wore a bell at its neck, that rang of itself in warning whenever there was trouble in any part of the world to which it belonged, while the figure itself turned on its base to look in the direction of the danger."

Not so with us, for no bell gives warning in the stern conflicts of our lives, and we are thrown upon conditions in which the individual must stand as his own guard against the dangers that surround him, and the enemies that seek his overthrow and obstruct his life work.

Sirs, the warp and woof of life is an interesting and curious object, intensely important to him who is about to take up the skeins of being to weave the fabric of daily life in his usual and professional progress, and happily will it be for him if an intelligent and constant attention is given to the limitations that ceaselessly press upon his existence, and recognition is given to the interrogation, which implies a wise maxim, Will it pay? And while no supernatural bell rings in warning of the approach of danger, still a mysterious, active, persistent power touches him with a suggestion to consider. The great philosophical poet, Alex. Pope, says, " What conscience dictates to be done or warns me not to do." And in this respect we are told by our masters in psychology that conscience is an internal revelation like a ceaseless voice of unerring prophecy, or a voice of ceaseless and unerring prophecy.

The interests that attach to the man as he stands on the threshold of his social, domestic and professional life are multitudinous and tremendous to him and often to others who are connected with him.

What is the true object or end to be attained? And what is the true criterion of a successful life? I would by no means attempt to define the philosophy of life in all its conditions, for it broadens beyond my comprehension; but this I will venture to suggest: Be manly, be attentive, be cautious of the rights, respect and opinion of others, be of good habits, be active in your profession, examine often into the fundamentals of your profession, and kindly in all your intercourse with mankind.

To the dentist as he enters into the practice of his chosen profession a skilled hand capable of the most excellent workmanship, and a mind educated in the best knowledge of the profession, and a manly bearing, are most important to him and to his patients.

To deftly and skillfully handle the aching tooth and swollen face and soothe the irritated nerves of his patient with sympathetic words, and make the new face look better than the old one did, will certainly open up the avenues to wealth and to fame.

Gentlemen, to designate him who approaches your office with an aching tooth or a swollen face, to submit to the torture of extraction, grinding and tamping, as a "patient" is certainly a misnomer and is as ludicrous as it is to call the long and endless argument of the lawyer a "brief." And evidently in the number of those who will seek your assistance will be those of a curious and mixed nature, and doubtless you will often remark at the close of a tiresome day that you have been working on the jawbone of an ass; but let me caution you that you so conduct yourself that as the days go by, you do not get to wagging the jawbone of the same kind of an animal.

It would be a rich strike for the dentists if they could make the defects of the mouth as popular and attractive as the oculist has made the defects of the eye, so that multitudes of the brainless take refuge behind a set of gold-rimmed glasses, and look as wise as the Father of his Country.

And this reminds us, that it is sad to think of the defects in the noble man who now stands at the forefront of all history. At a meeting of his generals at the close of the Revolutionary War, Washington arose to address his comrades, and putting on his spectacles, he said, "You see that I have grown blind as well as gray in the service of our country;" and we also learn that his first sweetheart gave him the mitten, and now to crown our humility we ascertain that the first American dentist made for the immortal Washington a set of artificial teeth. The set was carved out of ivory.

But let me draw your attention to the serious side of the situation. You are about to assume an important condition; you are accredited graduates of a dental college; you are about to face the stern and practical necessities of bread-winning; you are to enter the list of active and actual dentists. How shall you regard the professional duties and with what spirit and feeling will you enter upon your life work and continue the daily toil and submit to the constant burdens of an active laborer in the work.

Mr. Chancellor, whether we belong to those philosophers who account for all form, all life and all thought through the evolutionary power of "Matter and Motion," starting the genesis of creation in an original, noncreated cosmic-dust, never nonexistent; whether we are evolutionists who find in the lapse of ages persistent forces, originating in God and which have built up the existing conditions; whether we are Pantheists who see God as the soul of the universe, and believe that the universe is

God; or whether we are churchmen who accept the record of creation as set forth in the books of the Bible, all agree that a lofty ideal of life, and a high and dignified appreciation of one's life work, assist mightily in the success of the individual and the personal satisfaction with one's situation, and happiness, character, and power of mind.

The poet gives us a clear view of the inevitable fact of life in the following thoughts:

> "Life is before you, from the fated road
> You cannot turn; then take ye up the load,
> Not yours to tread or leave the unknown way,
> Ye must go o'er it meet ye what ye may.
> Gird up your souls within you to the deed,
> Angels and fellow-spirits bid you speed."

My friends, truth rests abidingly in the fundamentals of an intellectual nobility. All honest work is a noble avocation, and we should unceasingly look upon our chosen profession as a high type of excellence.

Look upon your life work as honorable and excellence therein as a sacred duty, and you will cheerfully and gladly do what otherwise, without this high feeling, might become tiresome and of low estimation. The space that the individual fills in life is a very small one, and he should see to it that that little is well filled, and a perpetual satisfaction in his situation will then constantly energize his mind and nerve his arm.

Gentlemen, many a brilliant and accomplished man has made a failure of his life work because of a total neglect to the fundamental basis of all success—to discharge the financial obligations essential and necessary in the daily existence. Financial honor is as essential to a high estimation as any other honor, and to be able to pay our way is simply keeping ourselves from being a burden to others in the conflict of life. The drone and the deadhead are disliked by the energetic and successful. He who borrows without an intention to repay is classed with the tramp and the worthless; he who desires his fellow-man to carry his burden for him is unworthy of any manly man.

Thus we see how important it is that you use a constant care to "husband your resources to be able to pay your obligations, and to feel the sustaining virtue, voiced by many an honest heart, "I owe no man." I do not mean that you should not incur debts or enter into obligations that will draw upon your future, but in making these necessary or advantageous obligations, you must ever have in mind that those debts are a sacred obligation, and every impulse shall be to use economy, prudence, care and all useful means to make an honorable financial success sufficient to discharge your obligations incurred with your fellow-men.

The sum and substance of the foregoing is, learn the best business methods recognized as within the conditions surrounding you, and in harmony with the ethical duties you owe to your profession.

Sirs, Carlyle tells us that when the famous Dr. Johnson was told that his friend Boswell was going to write his life, the learned doctor said that he would prevent Boswell from writing his life if he had to take Boswell's. And Carlyle says that a well written life is as rare as a well spent one, and consequently the doctor did not wish to run the risk. But, however, Boswell did write the life of Johnson and did not lose his own.

Also a well fitted address for an occasion like this is as rare as a modest dentist or an untruthful lawyer, and in entering upon the venture of this address I may have run the risk that Boswell was threatened with, but happily if I succeed fairly well as Boswell did I may be allowed to "go in peace," reminded to sin no more.

The elegant and classic Joseph Addison tells us that once when the old Grecian philosopher, Socrates, was reading some other learned fellow's manuscript to some of his friends he noticed that the long and tiresome piece was making his company weary and tired, and holding up the manuscript so they could see he was nearly through, he shouted, "Courage, lads, I see land." So while I cannot say I am about to close yet you have the assurance of the poor Scotch girl in the "Heart of Midlothian," that there never was yet such a weary day but that it finally came to an end.

As poor Effie Deans said, "The weariest day will hae its end at last," so as the snail pace of time passes along with the patient who is to be "remodeled" under your creative hand he has the assurance that it is as true as holy writ "that time shall be no more."

Many things used to take place in the times long past that do not appear to happen in our time, and we have historical instances of discoveries of remarkable teeth, which belonged to persons of great and blessed memory; and while it is an ungrateful task to strip the nimbus—the circle of rays—from the sacred and sweet comforting affairs and images that have in the aforetime given "aid and comfort" to our forefathers, still I deem it of sufficient interest to you that you have a mention of a tooth that your professors have doubtless kept from your examination, and have, perhaps, sought to hide from your curious and prying eyes and philosophical consideration. In the discoveries of bones and teeth of extinct monsters, during the 15th, 16th and 17th centuries, many amusing incidents are recorded, and await to surprise the scholar who studies the records of geology and paleontology. The church of St. Christopher, at Valence, possessed a tooth of St. Christopher, which was held in high and venerable estimation by the people, as a remnant of that saintly character, who figures in the legends of the church, but the sacrilegious paleontologist getting a look at this venerable relic, at once saw that it was the tooth of an extinct monster of the mammoth tribe.

And a late writer says, "As this relic was 'bigger than a man's fist,' it is difficult to picture what idea the people entertained of their saint." So had you lived at that time in Valence you would have been called upon to contemplate the dimensions of a man who had possessed a molar "as big as a man's fist."

In his novel entitled "St. Ronan's Well," Sir Walter Scott records a bit of fun arising from the remark of a rustic concerning the activity of the scholars who were seeking knowledge in geology. The rustic sees these men going about with hammer in hand seeking specimens, and they appear to him as expressed as follows: "And some rin up the hill and down the dale, knapping the chunky stanes to pieces wi' hammers like sae many road-makers run daft. They say 'tis to see how the warld was made."

Gentlemen, you will allow me to make an observation on this grand study of geology; said Hugh Miller: "The wonders of geology exercise every faculty of the mind—reason, memory, imagination—and although we cannot put the question to our fossils, it is something to be aroused as to be made to put the question to one's self."

And Emerson reflects with learning and eloquence when he says: "Everything in nature is engaged in writing its history; the planet and the pebble are attended by their shadows, the rolling rock leaves its furrows in the mountain side, the river its channel in the soil, the animal its bones in the stratum, the fern and leaf their modest epitaph on the coal, the falling drop sculptures its story on the stone—not a footstep on snow or on the ground, but traces in characters more or less enduring the record of its progress."

And this vast intellectual wealth is ours for the asking, and to be received with a lively and genuine pleasure—an enduring benefit.

We do not sufficiently appreciate the difference between a cultured, refined and gentlemanly person, and an ignorant, uncouth and ill-mannered person; nor do we sufficiently realize the happiness and satisfaction that one can teach his mind to render to him in the long and important life that he may pass before he meets his death.

Learning of the books is not all of culture, for one may have the historical knowledge of a Gibbon or a Macaulay; he may have the profound mathematical knowledge of a Newton or a Bacon; he may have the knowledge of geology of a Giekie or a Shaler, or he may read Greek and Latin as well as he can his native tongue, or perhaps he may be considered as standing among the leaders of your profession, and still may be sadly lacking in the attributes that make the ideal gem of refinement and kindly bearing, so priceless to himself.

"Lives of great men all remind us
We can make our own sublime;"

and in the grand lesson we can deduce from history and the study of biography, we find assurance that the mind is the steadfast anchor of a perpetual satisfaction, an unyielding and glorious power.

Mr. Chancellor, when that magnificent and noble man, Charles Sumner, stood in the Senate of the United States, surrounded by the legions of slavery, and spoke for sacred freedom, and in the cause of an outraged race, he felt the burning glow of a ceaseless upholding virtue and had a firm faith that the eternal principles of freedom were in the rising forces of the everlasting arm; and while a large majority was then arrayed against him, he in the lofty and noble attitude of a sublime orator, who in his faith in God and his knowledge of the destroying forces of bondage and the triumph of principle, sees into the future, said in solemn warning: "How unequal the contest, finite man wrestles with the Infinite."

Study the best works of history, philosophy and psychology, so read the best books of fiction, travels and poetry, study to ascertain a knowledge of the political questions and principles of politics, so that you will be a good citizen and intelligent to protect by your vote the purity of your country's institutions. Be bold to assert your ideas and enforce your judgment; be bold for the best as you see it; but do not be too bold; be bold, but not too bold.

One of the strongest powers of the human mind to give comfort to the individual and periods of pleasure to life, is the mysterious principle of fun, and a study of the philosophy underlying this power will teach much that is valuable. Why do we laugh, and why is the mental surprise so often given us, so agreeable? We laugh when things are too grave and when they are not grave enough. We are caught sometimes smiling at the very ideal virtues. The high sense of righteousness and Godly devotion of the old Camoneron deans in the grand story of the "Heart of Midlothian," makes us smile; the saintly groans and nasal-twanged devotion of Cromwell's soldiers, makes us laugh; but when we read of the unyielding purity of purpose, the magnificent courage with which these psalm-singing heroes praised God when they saw the enemies of their country, displaces the smile with a tear. "What noise is that I hear," said the French general. "That is Cromwell's soldiers singing psalms, while they are charging the enemy," said an under officer.

On the other hand, the sense of mirth becomes noisy at a mixed sense of fun arising from various conditions. "Is there a letter for me," said an innocent native of Sweden to a postmaster of Irish extraction in a town in Minnesota. "Pwhat's your name," said the native of Emerald Isle; with a tone of haste the Swede replied, "My name's on de letter."

So while the old colored preacher was powerfully telling his hearers of the beauties and glories of the gospel and placing a loud and trumpet ring on the beauty that the waters of salvation are free, without price or cost whatever, he suddenly remembered that his pay was sadly in arrears, and that he might disastrously damage his prospects, suddenly paused and wiping the tears from his eyes, said with deep emotion, "Bruderin, while de waters of salvation am free, you must pay for de use of de Lord's hydrant."

A learned and dignified justice of the peace, residing on his farm in Indiana, and having a high sense of the great office, came out of his house and discovered the hired man fighting with the justice's son; and the old man seeing his son getting the worst of it, suddenly climbed the fence which was on the line between Indiana and Ohio, and demanded in the name of the high office he held and the peace and dignity of the great State of Indiana, that the parties instantly stop and keep the peace, when simultaneously the son made a fierce assault upon the hired man, knocking him against the frail fence, and the old justice of the peace, together with the combatants fell across the line into the State of Ohio, and the old justice seeing his son succeeding, shouted, " Give him fits, John, I've lost my jurisdiction."

We should study not only to be instructed in the facts, but to feel the spirit of the conditions, and to catch the high and exalted power of the human mind. When the illustrious John Milton, who is as memorable in his struggle for liberty as for his unrivaled power of imagination and glowing imagery, wrote the famous work called " Paradise Lost," the religious world was in a condition to accept as substantial the splendid mental fabric that Milton erected as veritable facts of the designs and history of the strife of the angelic hosts on the plains of heaven, and fired with this high faith we can little feel at this day the glowing power this immortal verse had among the religious of the world.

We read it now with a calmer spirit, but with a high admiration for the boundless power of imagination and splendid genius of poetry, perhaps unequaled in any tongue or at any time in the world's literature. The professional man should set his face against devoting his whole time to his professional studies and should freely and fully read the great works of science, art and literature, and while he fully realizes the exact model of his duties and place as a man, he should also freely feel the spirit and appreciate the sentiment of those beautiful thoughts of Mrs. Hemans:

INVOCATION.

Answer me, burning stars of night,
Where has the spirit gone,
That past the reach of human sight
As a swift breeze hast flown?
And the stars answered me, " We roll
In light and power on high,
But of the never dying soul,
Ask that which cannot die."

Oh, many-toned and chainless wind,
Thou art a wanderer free,
Tell me if thou its place canst find,
Far over mount and sea?
And the wind answered in reply,
"The blue deep I have crossed,
And met its barks and billows high,
But not what thou hast lost."

Ye clouds that gorgeously repose
Around the setting sun,
Answer, have ye a home for those
Whose earthly race is run?
The bright clouds answered—"We depart,
We vanish from the sky;
Ask what is deathless in thy breast
For what cannot die."

Speak then thou voice of God within,
Thou of the deep low tone;
Answer me, through life's restless din—
Where is the spirit flown?
And the voice answered—" Be thou still,
Enough to know is given,
Clouds, winds and stars their part fulfill,
Thine is, to trust in Heaven."

Gentlemen, how pleasant it is to throw our minds backward, and in retrospection to pass through again the scenes of our early life, to visit the childhood play ground, to sail on the pleasant river, to rove over the mountain, to sit among those once dear to us and to feel the glow and gladness of their companionship, and again as a boy to pass through the joys and troubles of a young life. We all clearly remember those pranks and freaks of our boyish years, which put " mother " on the warpath, and us on the " retired list."

A laugh does us good, and a pleasant reminiscence fixes a bright spot in the voyage of life; a circumstance or suggestion often calls to mind the striking characteristic of a friend, and early association passes in review on hearing some jingle of words.

> I have never been a-whaling where the foaming billows sweep,
> I have never cut the blubber from the monster of the deep;
> But I've tender recollections of those days in boyhood's spring,
> When mother did the whaling and I did the blubbering.

There is a sadness when we reflect in the crumbling influences of time upon those near and dear to us. Sir Walter Scott at the opening of the Third Canto to the beautiful poem, "The Lady of the Lake," powerfully states this thought so common to us all. He writes :

> Time rolls his ceaseless course. The race of yore,
> Who danced our infancy upon their knee,
> And told our marveling boyhood legend's store
> Of their strange ventures happened by land or sea,
> How are they blotted from the things that be,
> How few, how weak, and wither'd of their force,
> Wait on the verge of dark eternity,
> Like stranded wrecks, the tide returning hoarse.
> To sweep them from our sight, Time rolls his ceaseless course.

And far better speaks the great Homer, who wrote twenty-five hundred years and more before Scott. And reading these lines of Homer which I will give you, we feel that he lived in an old age of mankind, where death and decay had made their ravages on the race. You must not think that Scott borrowed his thought from Homer, for while I am speaking to scholars who have studied deeply into the constitution of the human mind, still I must assert, that all thought arises from suggestions springing from the facts and verities of Nature, that appear in the lapse of of time, so the decay of the race and the loss of friends, suggests to the mind of each succeeding generation similar types of thought. Homer says :

> Like leaves of trees the race of man is found,
> Now green in youth, now withered on the ground;
> Another race the following spring supplies,
> They fall successive, and successive rise;
> So generations, in their course decay,
> So flourish these, when those have passed away.

Sirs, the vast and splendid exhibitions of power and beauty that are shown daily about and above us should have the careful study of every thoughtful man, energizing his mind to a recognition of the sublime in nature and the unspeakable grandeur of nature's works.

My brother, living at Carroll, has a comfortable and roomy cottage, beautifully situated on the east shore of Lake Okoboji, and the last few seasons myself and wife have been guests of his in this ideal summer home. At the close of the day, I think August 23, last year, I sat on the shore of the lake, watching the sunset across the water. Vast and extended clouds had piled themselves high up in the heavens, and as the setting sun sank behind this mass of clouds the rushing flood of sunlight turned them into a beautiful and goorgeus splendor suppassing all description and lighting up the western sky from a pale pink to a burning fire, while the mingled colors reflected themselves on the face of the broad expanse of the lake, making the water look like molden mineral, sky tinctured, dwarfing into insignificance the efforts of the artist to imitate the great scenes of nature.

Gentlemen, strikingly impressed as we often are with the gorgeous splendor of the scenery of nature, in the sky, on the field and forest, on the mountain and ocean, we are further challenged with the complicated and beautiful facts of the intellectual and social world, where the most marvelous transactions are going on.

You belong to a profession rich with the possibilities of a successful life to its members and of lasting benefit to those who faithfully attend to the duties before them; and standing on this high vantage ground over the generality of your fellow-men, you should feel a lively ambition to be a foremost member of this honored calling, and anxious to enter the fight for wealth and fame.

But we must remember that error and frailty darken and mar the life of man, and that we meet many human wrecks at every turn in life, reminding us that an abandoned and criminal existence is tenfold worse than never to have been born, and like the Grecian runner at the Isthmian games, we should set our eyes on the mark of success, determined to avoid the wretched results that so many of our fellows come to.

We should build on the foundations laid by our predecessors;

we should study their thought, learn their ways, imbibe whatever is noblest in their principles, and feel the impressive lessons of observation and experience of others that the persuasive force of our peers and forerunners shall instruct our minds and give us the high vantage ground of whatever has gone before.

Once when Sir Isaac Newton was congratulated on his great achievement in relation to the power of gravitation, and his discovery of the laws that hold the solar system in control, the great scientist disclaimed being entitled to all the commendation, and said: "If I have been able to see farther than any other person has, it is because I stood on the shoulders of giants."

Newton did not do all the thinking, but recognizing the continuity of scientific thought, he readily announced that his intellectual power was sustained by the labors of his peers and those who had gone before him.

Sirs, the English language, you will recall, has drawn richly for illustration and beauty of expression from the pleasant and comprehensive mythology of ancient Greece and Rome, and among these none finds a more useful and lively reception than that of Venus, the goddess of love and female beauty, and the little winged messenger, Cupid, with his bow and fatal arrow. So many of you have felt this shaft that I thought you would enjoy the instance when the hapless wanton was the victim himself of a stinging rebuke. Anacreon, an ancient poet who sang almost endlessly of love and wine, gives us the following, showing the hapless plight of Cupid:

Cupid once upon a bed
Of roses laid his weary head;
Luckless urchin, not to see
Within the leaves a slumbering bee;
The bee awaked—with anger wild,
The bee awaked, and stung the child.
Loud and piteous were his cries;
To Venus quick he runs, he flies;
"O, Mother, I am wounded through—
I die with pain,—in sooth I do,
Stung by some little angry thing,
Some serpent on a tiny wing—
A bee it was—for once, I know,
I heard a rustic call it so."
Thus he spake, and she the while
Heard him with a soothing smile;

Then said, "My infant, if so much
Thou feel the little wild bee's touch,
How must the heart, ah, Cupid, be,
The hapless heart that's stung by thee."

Graduates, let me detain you but a moment on the thought of your duties in relation to the ethics of your profession. There can be no doubt but that the ethical side of our professions gives us a lasting impulse of high estimation toward our life work, and redounds mightily to the good name and high standing of both dentistry and jurisprudence. A long and laborious course of study and preparation is essential, before you can enter the ranks of dentistry, and this alone should fill your minds with a high regard and confidence in the profession.

I will not undertake to indicate the specific things you should do or should not do, for you can find them better in the journals of your profession, and the advice of the honorable practitioners among you, and especially by observing the daily practice of those you admire of your profession.

In the rational susceptibility of man, we rise altogether beyond any power of the mere animal, and the rational nature only operates on the mind, and in this we find the ethical emotions of our beings. The thought and feeling of intrinsic dignity and excellence inheres in the profession, and forbids us to do any act not for its own worthiness and not in accordance with the ultimate rule of right. "The ultimate rule is determined," says a great writer on the science of the mind, "not by the inquiry, what may the endless ongoings of nature do for me? but what does the worthiness of my own rational being demand of me?" Thus transferring this thought of high duty to the intrinsic dignity and excellency that are inherent in your profession, the ethical impulse persists in a call to professional duty and life.

The practices and duties thought essential and proper by the peers and professors in dentistry should have your cheerful obedience, and a high standard of excellency should be your constant aim. There can be nothing more injurious to the standard of work and the rate of wage than an ethical collapse in a great and useful profession.

Gentlemen, in your journey along the pathway of life that you have a divine nature you should constantly bear in mind. To the barren negation of agnosticism I cannot consent, and the deadly nightshade of Ingersollism and no religious belief we should avoid.

In the investigation of the human mind we are met with the profound mystery of the rational susceptibilities, superadded to the powers of the five senses. This rational entity craves insight into pure reason, pure morals and lofty ideals, and assimilates the mind in unison with the absolute reason.

Can you tell me why right is superior to wrong? Why in the economy of nature truth is permanent? and why the principles of science ever work out a solution of the problems and are unfailing in their ongoings? It is because the eternal principles of nature are energized by a Supreme Intelligence.

In my study of the history of mankind, in my meditation of the destiny of man, in my examination of the institutions he had founded, the struggles he has had, the woes he has suffered, the crimes he has committed, the toil he has endured, I have often thought that the grave ought to contain all there is of man at his death; but when I look a little deeper into his nature, when I consider his noble and manly fight for the right, his pure charity, his love of the beautiful, the sublime and the truthful, when I see him building for immortal time, when I consider the grandeur of his mind, when I contemplate the picture of the suffering, the labor, the toil and the privation that have been the lot of the human race in its weary march to comfort, freedom and peace, I feel an exaltation of spirit and a lively conviction that man is too noble and too grand to perish, but will surely survive the wreck of the grave and live in the after time. Such claim natural and revealed religion; they speak one voice.

Sirs, he who labors on the ample manifestations of nature, meditates in profound thought on the world of life, carries his mind far out into the realms of space, grasps in attempted solution the profundity of nature, holding in his mental grasp the endless powers of the understanding, the emanations of the sensibilities and the restless activities of the will, cast mysteriously together by the Godhead, surely has an ample and unyielding foundation for his belief in a future life. How else can we find a solution of ultimate forces, the triumph of right over wrong, and the genesis of truth?

Where else can we find the basis for the intrinsic dignity and excellency of character?

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held May 2, 1900.

PRESENTATION OF CASES.

Dr. TRUMAN W. BROPHY: *Case 1.* This man has been operated upon three or four times for a number of deformities of the face and mouth. He came to us the 22d of last August. He had congenital cleft palate, and harelip and a defective nose. He had been wearing an obturator, which was removed and an operation made for closure of the palate. Subsequently an operation was made upon the lip to remove a deep depression extending half way up the nose, and then the nose was changed. The right side of the nose was flattened and there was a superabundance of tissue. In order to change the nose and give it a natural form it was not only necessary to partially close the nostril, making it smaller, but after that was done, to remove a v-shaped piece of the nose, which we did. The man has attained an age where it would be difficult for him to make a complete recovery, but he speaks better than before, and his nose, as you see, while not quite perfect, is more nearly its original form. The right side was flattened and the lower border of the nose extended down so that the face was very irregular. He had no teeth and we adjusted for him plates with the old-fashioned spiral spring attachments which you do not often see these days. Just how well they work I do not know, but he manages to get along with them. You see we go back in this case to the construction of an artificial denture that is rarely used in these times. The flatness of the palate rendered an atmospheric pressure plate unsuitable, so the spiral springs have been adjusted and will serve the purpose very well.

This man was eager to have something done for his relief. He used to come to us with a great deal of zest and appeal for help, and as a result of our operations he has been so changed that I think his most intimate friends would not recognize him.

Case 2. This little one is a child I exhibited last summer, when it was about three months old. We have done nothing with the lip; we closed only the hard palate. Next Tuesday we will close the soft palate, and later the lip. This little child's sister, now about eleven years old, was operated upon by me when she was ten days old. She had a cleft palate and double harelip, and she was the little child that surprised many people at Niagara Falls by speaking with perfect articulation and pronouncing perfectly words that are extremely difficult for those having cleft palate to pronounce.

If you will look in this little one's mouth you will see that the hard palate is perfectly united, and that the folds of the soft palate are nearly in contact, so that the further operation in closing the soft palate will be very simple, and the closure of the lip is a matter of very little consequence compared with the difficulty of closing the palate. I feel very proud of these results, because in this family there were four children born having defects of the palate, three of whom I operated upon with most satisfactory results. The fourth died a day or two after it was born.

Case 3. This patient had extensive necrosis of the upper jaw. All we have done in this case is the cleansing of the parts since the necrotic bone was removed. Nature has completed the process of repair. You will see that the alveolar processes are all gone, but the parts are doing well, and when the patient gets an artificial denture adjusted the lips will be given a natural position.

Case 4. This is a case of considerable interest, showing the result of a plastic operation made for the restoration of the nose. Dr. Loud, of Iowa, did the operation. You can see the lines where union was effected, and it is in a very good condition. It was reflected very much to the left and I did an operation removing a section of the tissues upon the right side, bringing the nose around to a more natural position. I took out nearly half an inch of integument and brought the nose over to the right side so as to make it more symmetrical. When the patient first came to me I found it was not possible for her to carry on respiration through the nasal passage, and in order to overcome that difficulty I put a tube of gutta-percha in the nose. Later on we will make one of pink rubber, or something else that will serve the purpose. The tube enables her to breathe through her nose; when it is not in place the nose collapses completely so as to occlude the passage of air into the nasal cavity.

What I desire to call attention to particularly is the possibilities in plastic surgery. This girl has had her face restored by the operation and is relieved of the embarrassment she would have been subject to through life on account of this great deformity.

Case 5. This patient has been suffering for a long time from diseased antrum, and has apparently done well under the influence of medication. Oftentimes these cases come to us and the patient feels that an operation is indicated, but it is our practice to never operate when we can possibly restore the parts to health by means of medication within a reasonable time. This woman has been under treatment not quite three weeks. We have employed a remedy that is old and yet most potent in the management of cases of this character—nitrate of silver solution in the proportion of 1½ to 100. This gives us an astringent, antiseptic and germicide, and under the influence of this agent it has been found in Europe that cases of this kind do better than under the action of almost any other medication. It is so common in these days to make use of new remedies that come out, and nothing is used more extensively, perhaps, than the coal tar products.

Another agent that has done great harm during the last decade is peroxide of hydrogen, which is used indiscriminately and, in my judgment, in many cases without the least idea of what it does. It will serve a most excellent purpose when judiciously employed, but there is no remedy in the pharmacopeia that is doing more harm than the peroxide of hydrogen. Carried into cavities where there is pus and blood we will have a rapid evolution of gas following its injection, which in turn often tears away the periosteum from the bone and carries the infection from the part first infected, and establishes a condition worse than that which existed prior to the employment of the remedy. If this agent is to be used I would endeavor as far as possible to remove the fluids first and subsequently to remove any broken down tissue that might cling to the part, sterilizing it with a boric acid solution or a weak solution of carbolic acid, after which pyrozone may be used, and then treating it later with the nitrate of silver in proportion of about one part to a hundred, or one per cent, sometimes carrying it as far as two per cent. That is all that is required where we do not have complications. If we have antral abscess with necrosis of the bone, or complications, polypi, etc., there is no other recourse than to make an opening into the antrum and remove the necrotic bone, or the growths we may find there, and then by the use of antiseptic methods the patient will get well. In chronic cases I am sure the most reasonable course to pursue is to make extensive openings.

Case 6. This man shows the result of the treatment of double fracture of the lower jaw. It is in my opinion a beautiful result which has been accomplished. We had here a double fracture of the lower jaw; you can see the effects of the injury between the cuspid and lateral incisor on the left side. There was an enormous swelling upon the right side, the pus had lifted away the integument and extended down to the clavicle, a swelling as large as represented by my two hands. It is not at all exaggerating to say that there was a half pint of pus removed from this man's neck. When I first saw him he was bordering on collapse from pyemia, but now he looks strong and well. The pus was evacuated by making an incision at the lowest point reached by it. The teeth were wired together, the teeth of the lower jaw literally tied to those of the upper jaw so that they could not move, and a plaster of paris splint was placed in position. He was treated antiseptically and recovered with perfect occlusion of the teeth. His teeth are all in place, and you can see that the occlusion is perfect. If we can succeed in getting the fragments so adjusted as to get a good occlusion of the teeth and are able to maintain that occlusion until nature has had time to bring about union of the fragments, we need have no apprehension of complaint about a bad result.

EXHIBITION OF PATIENT.

Dr. C. E. Bentley: Empyema of antrum of over three years' standing. Radical operation. Speedy recovery. This is a case of antral trouble of three years' standing, that I operated upon the first of last September. The gentleman came to me after having suffered a great deal, and been treated by various physicians for various diseases. The last physician treated him for what he claimed was erysipelas. Another physician treated him for a condition that drew the pus through the antrum into this opening, this sinus, and this is the mark left on the face. He came into my hands, and by the transillumination test and passing the probe into the middle meatus I found pus following it, and decided to operate. The first molar tooth was gone, but in my explorations I found that the palatine root of the first molar was still imbedded. I extracted that, then made a very large opening into the floor of the antrum, in fact I tore out the entire maxillary floor of the antrum; so large was it that I could pass my thumb into the same, and great quantities of pus came away. When this man came to me he had a temperature of 104°, a pulse of 120, and his wife had to change the bed clothing every night twice on account of the perspiration. I tore out the floor of the antrum on the first of September, and the third week after the operation the man was cured and the enormous hole in the antrum is practically closed, as you can see.

Dr. W. H. Taggart: I will show this nitrous oxide blowpipe. While this is not especially new in principle, it is an easy way for the dentist to construct his nitrous oxide blowpipe on lines similar to the Knapp blowpipe, which costs about $14; and this costs twenty cents and is much better, for the reason that it gives a better flow of gas. With our recent way of using the platinum solder, it is quite necessary to have a nitrous oxide flame to melt it, and I thought to a great many who had not seen this it would show a way of fixing it up. There is a rather complicated and expensive piece that goes with the cylinders of the Knapp blowpipe. At J. B. Clow & Sons', or any steamfitter's supply house, you can get this base piece, which is intended to put around steampipes where they come through the ceiling; it just fits this cylinder of gas and costs fifteen cents; it is called a ceiling plate. This is really ten times as efficient as the Knapp blowpipe. While it is built on the same lines, the Knapp blowpipe was invented possibly twenty years ago with the idea of taking care of gold crown work, and they had to be careful not to get it too hot because intense heat would melt the gold too readily. But in this larger work and continuous gum work we want more heat, and this takes in five times more gas. I can solder continuous gum work with this without difficulty.

I hardly thought the exhibit was going to take this form and I brought what to me has proven a very practical help in swedging. Taking and making the counter-dies, as we ordinarily do, after the plate is first struck up to get it approximating somewhere near the right amount of metal, warm the counter-die to a comfortable heat, put a piece of gutta-percha plate on the counter-die and put the die and counter-die together. Trim the surplus of gutta-percha hanging between and leave the counter-die covered with gutta-percha. The reason it is so efficient is that the gutta-percha when confined in lead counter-die forms a much better counter-die, and will swedge the plate closer to the die than you can possibly do it between metals, and if the die has to be scraped and altered (as it always should be) a little warm gutta-percha can be added and no necessity for making a new counter-die. Another idea, always keep your die and counter well covered with oil, not alone for the purpose of keeping the base metals from sticking to the plate, but the plate has a much less tendency to tear, as the oil allows it to slide to its place without friction. Here is a die and counter-die. This is the second plate I am making from this same die and you can see how well it is being taken care of by this counter-die of gutta-percha.

Dr. TAGGART: I would like to ask Dr. Bentley if that crown cutter is an original idea?

Dr. BENTLEY: No, nothing original, though I may have suggested the idea to the gentleman who got the patent up.

Dr. TAGGART: I ask because some four years ago Mr. Cornell, who was then connected with the Wilmington Company, brought an old gentleman into my office and wanted me to pass an opinion on a crown slitting forceps, and he showed me practically this same thing.

Dr. BENTLEY: What was his name?

Dr. TAGGART: I do not know his name.

Dr. BENTLEY: The gentleman who made that was nameless. I want to say that I was taking a crown off for this gentleman, in the usual way by slitting the crown with a bur, and he asked me if that was the best I could do. I said that was the best I could do, and told him that if some mechanic would devise a scheme where the plate would be revolving and at the same time a small point making its fulcrum, it would be better. He said, "The next time I come I will have devised something better for your bur." I think the original instrument he brought, possibly as the result of my suggestion, is in my office. The Consolidated Co. has since bought the instrument from him and this is the result.

Dr. TAGGART: The point I want to emphasize is that the man who invented that is the man whose name should have been given to us to-night; we would naturally take it for granted that it was Dr. Bentley's instrument. I am the champion of the man in Iowa. He was an old man who said it was the only thing he had to make money out of. He said he wanted to get it before the profession and wanted a recommendation to take to the White folks or the Wilmington folks to try and get them to take hold of it. I believe in giving him the credit even if he does not make a dollar out of it. I had a little tilt with Dr. Bentley one evening before this society about this patent business. I claim that the man who invented this instrument should have the credit; but Dr. Bentley does not believe in a dentist getting a patent, although he believes a man should get a copyright on a book.

Dr. BENTLEY: I wish to say in justification that I make no claim to this instrument, and it was only through the politeness of Dr. Tenney that my name was mentioned in connection with it. I directed his attention to the article when I sent the old gentleman to the White folks, who did not purchase the instrument; then I had the Consolidated people buy the instrument. I have never seen an instrument like it, and so far as I know it was original with him. I do not claim it, but suppose I suggested the idea to the old gentleman.

I wish to say in reference to the exhibit of Dr. Tenney that I think we all appreciate what he has done in bringing before us this exhibit in such a practical way. He has been at work for the last two months on this exhibit and has ransacked the dental depots in different parts of the country, and the manner in which he has brought his results before us, the way in which the exhibits are mounted, as well as the excellence of his paper, I think is highly commendable. It proves conclusively the necessity of having these things brought to our notice at least every year. Most of us seldom go to the dental depots, and we are not conscious of what is being produced. This Allen crown holder, for instance, the simplicity and usefulness of which appeals to us at once, and I could say the same of many other instruments exhibited here. I am highly pleased with the manner in which Dr. Tenney has produced this exhibit and with the pertinence of his paper.

Dr. GEO. B. PERRY: The case which I have to present to the society this evening shows the bridge which I replaced, composed of a gold band around the right superior central, left superior central and lateral porcelain facings and an open gold crown on the left superior cuspid, the action of which, in addition to pyorrhea alveolaris, had loosened the teeth to which it was attached. I devitalized the right lateral and left cuspid, burnishing a 31 gauge piece of platinum upon the palatal surface of each, placed an iridio-platinum pin in each canal and soldered it to the plate. I then burnished them again to get more perfect adaptation, and trimmed them just a shade beyond the contour line, thus making a partial cup shape. I excised the right central, made carious at the gingival margin by the movement of the band and secretions collecting there, and made a Richmond crown for it. In the space I fitted a central and lateral facing, assembling all of the parts in their proper relation to each other, took an impression, cast it and soldered them together. When the bridge was permanently set it strengthened the loosened teeth without showing any metal. These models will show the appearance of the mouth before and after the operation. I lay no claim to originality for the palatal plate, but simply show the combination with a Richmond crown, and the benefit of making a strong bridge without the unpleasant display of gold or platinum.

Dr. F. W. STEPHAN: I can say no more than Dr. Tenney has said about the appliance. He has told all that I know. I think it is a good thing.

Dr. BROPHY: It has seemed to me this evening that if we could get the members of our profession to bring before societies the instruments devised from time to time, it would be an excellent thing to do because it would bring to our notice many devices that otherwise lie dormant for years and sometimes are lost sight of. It is well known that there are scores of most valuable instruments designed for our purposes that have been buried out of sight and are not to be procured anywhere. Even the first patterns made, useful as they were, have been deposited in vaults and kept from our use. So if we could get these appliances brought before us once or twice a year it would be greatly to our advantage. Not long since I received a photograph from the Pacific Coast showing some elevators designed for extracting tooth roots, and the note accompanying these photographs stated that this was a new patent, issued in the latter part of 1899. Well, it is a fact that in 1887, twelve years at least previously, a gentleman came here from Wyoming and presented me with a set of instruments precisely the same in every respect. How another man could procure a patent twelve years later on the same thing is beyond me. There is one thing certain, either the man who procured this patent got his idea from the man who first made the instruments or else it is a further illustration of the old maxim that great minds run in the same channel. I shall take these instruments of 1887 to the State society, together with the photographs of 1899, and show that they are exactly the same; there is not the slightest deviation in any way. In this exhibit there are a great many things that are intensely interesting and I have no doubt very valuable. There are some things here I probably never would have seen otherwise, because I rarely go into a dental depot. Things brought out in this way gives everybody a chance to see what is being done that is of value. There are a great many new things in the dental depots that are of no account and discriminating exhibits like this are very interesting.

Dr. TAGGART: I would speak a word further about the investing compound of Dr. Brophy's. I think I have used everything advertised the world over, and this last preparation Dr. Brophy has presented to the profession is without doubt in my mind the very best made for the purpose. It will stand a higher heat than anything we have ever had, without glazing, without any flux upon it. I use my nitrous oxide blowpipe, and you know with ordinary compounds when you get it at a white heat it begins to bubble and boil as if flux of some kind was in it, but this is without that and comes away entirely free from porcelain, no matter if you have overheated it. While other compounds have a tendency to flux and melt the porcelain, this comes away by just washing it off, as smooth as the tooth originally was. So I wish to speak a word in favor of it and also in favor of Johnson's cleavers. They are the daintiest thing for scaling the enamel off the roots we have ever had.

Dr. E. MAWHINNEY: I would like to say a word about the instruments of Dr. Prothero. After you have ground down your tooth as short as you want it they are intended to trim off the unevenness. You take them in your hand and it is marvelous how you can trim around the unevenness after you have trimmed off the enamel. These are excellent for that purpose also; I was surprised the other day on going into the infirmary at finding the boys where they could not get the Black trimmers were using these of Professor Prothero. They do work beautifully, because of the fact that you rest your thumb on the tooth and in that way you can guard it and without causing any hemorrhage run around the tooth in any shape you wish.

Dr. E. A. Royce: It seems to me this exhibit contains many good things, some I know about by practical use and some by reputation and reports from others. Of course any one seeing an exhibit of this kind knows that somebody has done a great deal of work to get it up, and the paper was so nicely presented I think thanks are due Dr. Tenney for his effort. I believe if more attention was given by the societies to the practical part, we will say to the manufacturers' part of dentistry, some of us would be better able to keep up with affairs.

I would like to ask if there is anybody here who has used that small furnace and knows from practical experience what it will do? The Mason foot switch I have heard spoken of highly. The mouth-pieces for saliva ejectors that have been presented I have heard spoken of highly. As to the articulators, any one who has studied the present trend of artificial work knows that something of the kind is necessary. The White people are at the present time attempting to improve the Bonwill articulator so that it will meet all requirements. I am personally in favor of the Bonwill because it is so light and enables us to get to the lingual faces of the teeth so much better. The mechanical part of dentistry is traveling very fast, and it is only by efforts of this kind that we can keep up with it. I endorse the sentiment expressed that we should have an exhibit of this kind, and more extensive search for new things, once a year.

Dr. Tenney, in closing the discussion, said: I do not feel that this is a subject that calls for any closing discussion. I am very grateful if the exhibit has proved of interest and wish to thank those who have seen fit to come and see it.

THE DENTAL REVIEW.

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PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

HONORS.

At the last commencement of Lake Forest University the degree of LL. D. was conferred on W. C. Barrett, M. D., D. D. S., of Buffalo, N. Y., as some slight recognition of his labors on the Foreign Relations Committee of the Association of Faculties and of his standing as an author and educator.

THE FRAUDULENT DEGREE BUSINESS.

Thanks to the energetic labors of the Foreign Relations Committee of the National Association of Dental Faculties, this infamous traffic is likely to be stopped. This is what one of the committee has to say about it:

BUFFALO, N. Y., June 15, 1900.

You have probably seen that the men who are selling degrees under the title of "The Independent Medical College of Chicago," have been arrested and were in jail, at the last I knew of them. This is the worst of the Illinois fraudulent schools. You know that the first of the public agitation against these affairs was begun by the report of the Foreign Relations Committee of the N. A. D. F. made by me at Omaha two years ago. I called attention to what was taking place, and it aroused public attention to a considerable degree when it was published. A meeting of the representatives of the degree granting institutions of Illinois was called, and a committee consisting of President Rogers, of Northwestern University, Harper, of Chicago University, and McClure, of Lake Forest University, was appointed to secure proper legislation. They used my report before the legislature and published extracts from it widely. Their efforts to obtain the desired legislation failed, but in the meantime the N. A. D. F. had authorized the Foreign Relations Committee to take whatever steps it deemed advisable, and it placed in their hands a sum of money to assist in furthering the object. We employed counsel, but finding that the State Board of Health of Illinois was taking steps in the affair we joined our forces to theirs and worked with them. We obtained the passage of a bill during the winter of 1898 and 1899 giving authority to revoke the charters of schools or pretended schools which were issuing degrees irregularly.

The "Independent Medical College" was offering to sell thirty-six different degrees and diplomas. We have been hunting them ever since last year, and as you know have brought them to book and got the principal men behind prison bars for lack of bail. We found that institution had twenty-four different charters, so that as fast as one was annulled they would bring out another. The State Board of Health has taken the lead in the prosecution that has resulted in what we hope will be the permanent imprisonment of these scoundrels, and the breaking up of the worst of the fraudulent colleges. We hope it will act as a warning to others and break up the business altogether. We find that this one institution has sold more than one thousand diplomas of different kinds, principally in medicine and dentistry.

Truly yours,

W. C. BARRETT.

Some of these men had the effrontery to hold a meeting in one of the hotels in this city a few days ago to talk about the advancement of scientific education!

THE NATIONAL DENTAL ASSOCIATION.

The next meeting of the National Dental Association will be held in Milwaukee. A large meeting can be predicted as there will not be a dental congress to be held in 1901.

INTERNATIONAL DENTAL CONGRESS.

Before another issue of the DENTAL REVIEW reaches the reader the Third International Dental Congress will have closed it sessions and the world of science will have been enriched by many papers of great merit from all portions of the world. Some of the good ones will be read by Americans, as we have had the privilege of looking over many of them. It is too early to say where the next congress will be held, but most likely somewhere in Europe, as it is too soon after '93 for another in the United States. About 200 members of the profession from the United States will be in Paris.

DENTAL COLLEGE COMMENCEMENTS.

DENTAL DEPARTMENT, WESTERN RESERVE UNIVERSITY.

The annual commencement exercises of the Western Reserve University were held June 14, in Beckwith Memorial Church.

Rev. Lyman Abbott, of New York, delivered the address to the graduates. President Charles F. Thwing, of the University, conferred the degree of Doctor of Dental Surgery upon the following graduates:

George Dennis Allison, Frank Lester Bishop, Roland Gerald Borland, Leon Dallas Boylan, 'John DeVeny Bunn, Wm. Robert Burkhart, M. D., Harold Mather Clapp, Richard Emile Currie, Homer Clyde Darrah, Will F. Diffenbacher, James Thomas Doyle, Earl Booth Duffy, James Lawrence Dusek, Frederick George Eggert, Frank Bascom Elder, Gustave T. Fuenfstueck, John Irving Gilmore, M. A., Peter Anthony Haas, Will Clayton Hall, Dale Robert Jacobs, Thomas Jefferson Jones, Richard Henry Lindhorst, William Arthur Norris, Wm. Abner Nichols, Albert Otis Osborne, Otto John Schneider, Clyde Lee Smith, Francis Lucius Stentz, Theodore Halsey Terry, Willard Bradford Tiffany, James Fred Wark.

UNIVERSITY OF MICHIGAN, COLLEGE OF DENTAL SURGERY.

GRADUATING CLASS.—William Leroy Ainsworth, Edward John Anderson, Floyd Henry Austin, Bostwick Barnes, A. B., Ohio Wesleyan University, Marie Becker, Raymond Henry Bedell, Harry Cameron Benson, Thomas Ross Braden, Charles Morehead Briggs, George Wood Clapp, Albert George Coggin, David Gilbert Colwell, Jr., Morton Dusenbery Coons, M. D., John Corpron, Wesley John Davis, Berkley Albert Deyoe, LL. B., Thomas Davidson Dow, Herbert Egbert Gerber, Artemas Blake Gray, Hugh Thomas Gundry, Charles Glazier Hampton, Jr., Albert Rhodes Hervey, Marvin Houghton, Robert Courtney Hunt, William Luther Hurd, James Herbert Jones, Bernard J. Keenan, Melville Arthur Kendrick, Robert Andrew Law, Charles Lord, Johnson Low, James Clay Lowrie, Pearl John Ludington, Donald Mayhew McCall, David Maydole Matteson, Charles Emerson Mercer, Benjamin Franklin Miller, Jr., Benjamin John Miller, Lulu Ella Mitchell, Ernest Henry Monroe, Lorne Ross Moodie, Frank Eugene Morse, Aldro Leroy Munn, Marie Louise Pagelsen, Robert Larimar Park, James J. Perry, Leo Benjamin Plummer, B. S., Michigan Agricultural College, William Claudius Puffenberger, Elsa Schultz-Hopf, Uriah Milton Smith, John Charles Snelling, Harry Francis Spence, Augustus L. Steger, George Benson Stewart, John Edward Stoffer, Albert Raphael Thomas, Mabel Tibbott, Elbert John Tower, Fred Frisbee Vandercook, Robert Misson Van Duser, Lee Adelbert Watling, James Robert Watson, Oswald Whalley, Garrett Oliver Wright.

MEMORANDA.

Dr. C. S. Case will attend the congress.

Dr. J. W. Wassall will sail July 26 for Paris.

Dr. F. B. Keppy, of Brooklyn, has gone to Paris.

Why not use protargol for sensitive roots of teeth?

Dr. W. E. Griswold sailed July 14 on the "Campania."

Drs. Geo. W. Cook and G. W. Dittmar will sail July 21.

Dr. Thos. E. Weeks, of Minneapolis, was in Chicago in July.

Dr. Lawrence Leonard, of Waseca, Minn., visited Chicago in July.

Dr. F. P. Cronkhite, of St. Joseph, Mo., will attend the Congress in Paris.

Dr. C. R. Baker, of Davenport, Iowa, spent a few days in Chicago in July.

Dr. H. A. Truxillo, of New Orleans, was in Chicago on a visit in July.

Drs. Josephine D. Pfeifer and Emma Eames Chase will attend the congress.

Drs. E. H. Angle and P. H. Morrison, of St. Louis, will go to Paris the 18th of July.

Dr. W. L. Hughes, formerly of Chicago but now a resident of Mexico, is in Chicago recreating.

Drs. T. L. Gilmer and W. V-B. Ames will sail the 21st, going direct to London and afterward to Paris.

B. J. Cigrand, D. D. S., has gone to Paris and the continent for a several months' trip. He will take in the congress at Paris.

Drs. T. W. Brophy, J. E. Hinkins, Robert Good, J. D. Pfeiffer, Gordon White and A. W. Harlan will sail on the St. Paul, July 18.

SECTION OF STOMATOLOGY AMERICAN MEDICAL ASSOCIATION.

Chairman, R. R. Andrews, Cambridge, Mass.; Secretary, E. S. Talbot, Chicago. Next meeting, St. Paul, Minn., June 4–7, 1901.

It is said that boric acid, honey, listerine and a decoction of quinine will arrest suppuration of the gums in miasmic fever if used copiously. We think the quinine is probably the efficient agent in such cases.

BLOOMINGTON FIRE.

The following dentists were burned out at the recent fire at Bloomington: Drs. J. Campbell, L. B. Lockett, H. A. Stevens, E. B. Coen, C. A. Morrison, J. M. Crigler and B. M. VanDervort.

COLORADO STATE DENTAL ASSOCIATION.

At the annual meeting of the Colorado State Dental Association held at Boulder, Colo., June 12, 13 and 14, 1900, the following officers were elected for the ensuing year: E. R. Warner, Denver, President; J. Allen Smith, Colorado Springs, Vice President; H. F. Hoffman, Denver, Secretary; William Smedley, Denver, Treasurer.

H. F. HOFFMAN,
Secretary.

KENTUCKY STATE DENTAL ASSOCIATION.

The following are the officers of the Kentucky State Dental Association: President, Dr. J. W. Juett, Eminence, Ky.; Vice President, Dr. W. W. Barnes, Louisville, Ky.; Secretary, Dr. F. I. Gardner, Louisville, Ky.; Treas., Dr. Fred R. Wilder, Louisville, Ky. Yours truly,

F. I. GARDNER.

The fourteenth annual commencement of the Louisville College of Dentistry was held June 27, 8 P. M., at Macauley's Theater. The graduating class, numbering forty-five, represented twelve different States. The time of session has been changed, and the next term begins October 10.

VISIT TO DENTISTS COSTS LIVES.

A few days ago William Schoeplin, a popular young man of Osceola, had a tooth extracted, the dentist applying a preparation to make the operation painless. Blood poisoning developed and Schoeplin's death followed, after continual agony.

Herman Ladwig, a young man from Manitowoc, had several teeth pulled by a local dentist. Lockjaw set in and he died in terrible agony.—*Daily Paper.*

MINNESOTA STATE DENTAL ASSOCIATION.

The seventeenth annual meeting of the Minnesota State Dental Association will be held in Minneapolis, Minn., September 5, 6 and 7, 1900. A cordial invitation is extended to all members of the profession in this and other States One-half fare on all roads to the "Twin Cities" that week.

A good meeting is assured. Come.

H. L. CRUTTENDEN, *Secretary,*
Northfield, Minn.

THE NATIONAL DENTAL ASSOCIATION.

The following officers were elected at Old Point Comfort July 12: President, G. V. Black, Chicago. Vice Presidents, Truman W. Brophy, Chicago; M. F. Finley, Washington; E. S. Gaylord, New Haven. Recording Secretary, A. H. Peck, Chicago; Corresponding Secretary, Mary E. Gallup, Boston; Treasurer, H. W. Morgan. Executive Committee, C. N. Johnson, Chicago; V. H. Jackson, New York; T. P. Hinman, Atlanta. Executive Council, H. J. Burkhart, Batavia; W. E. Griswold, Denver; Thos. Fillebrown, Boston; J. Y. Crawford, Nashville, and B. Holly Smith, Baltimore. Next place of meeting, Milwaukee, Wis., the first Tuesday in August, 1901.

The Missouri State Dental Association elected the following officers at its thirty-sixth annual meeting, July 10-13, Louisiana, Mo.:

President, F. F. Fletcher, St. Louis; First Vice President, W. M. Carter, Sedalia; Second Vice President, F. H. Achelpohl, St. Charles; Corresponding Secretary, B. L. Thorpe, St. Louis; Recording Secretary, H. H. Sullivan, Kansas City; Treasurer, J. T. Fry, Moberly. Committee on Ethics: A. M. Magee, Louisiana; J. T. Hull, Sedalia; G. H. Gibson, St. Louis. Censors: R. R.

Vaughn, St. Louis; J. W. Hull, Kansas City; J. F. McWilliams, Mexico. Publication: Wm. Conrad, St. Louis; W. W. Birkhead, Louisiana. Executive Committee: F. M. Fulkerson, Sedalia; W. M. Carter, Sedalia; J. F. Hull, Butler. Committee on International Dental Congress during St. Louis World's Fair, 1903: Wm. Conrad, B. L. Thorpe, H. J. McKellops, F. F. Fletcher, A. H. Fuller, Walter M. Bartlett, W. F. Lawrenz, all of St. Louis.

Next meeting place, Sedalia, first Tuesday after July 4, 1901.

PATENTS OF INTEREST TO DENTISTS, RECENTLY GRANTED.

649,424. Manufacture of tooth crowns, Aaron E. Adams, assignor of one-half to E. L. Truelove, Ardmore, Ind. Ter.

649,717. Gas administering apparatus, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Co., Philadelphia, Pa.

649,642. Shaft coupling for dental engine hand pieces, Roscoe F. Ludwig, Chicago, Ill.

649,854. Dentist's mouth dilator, etc., John A. W. Lundborg, San Francisco, Cal.

649,742. Dental forceps, Benjamin B. Mories, Markesan, Wis.

649,624. Manufacture of artificial teeth, Friedrich A. Wienand, Pforzheim, Germany.

650,350. Dental impression tray, Louis A. Block, assignor of one-half to R. C. Graham, Chicago, Ill.

650,042. Dental chair, Abraham L. Gilmer, Alamosa, Cal.

650,088. Dental instrument, Alfred D. Hoag, Philadelphia, Pa.

650,153. Dental tray, Charles McLear, assignor to A. I. Wyatt and R. C. Graham, Chicago, Ill.

650,260. Dental trimmer, Charles F. C. Mehlig, New York, N. Y.

32,715. Design, dental cabinet, Wm. E. Harper, Chicago, Ill.

650,464. Dental bite-plate, Louis F. Hough, Hamilton, Va.

650,400. Device for swaging dental cap crowns, George F. Krieger, assignor of one-third to A. B. Horn, Chicago, Ill.

650,467. Hand press for making metal caps, George F. Krieger, assignor of one-third to A. B. Horn, Chicago, Ill.

650,685. Dental tooth crown stamping machine, Norman S. Lea, Charleston, S. C.

651,753. Dental compound, Benjamin C. Fowlkes, Mobile, Ala.

651,469. Dental motor, Oscar H. and A. F. Pieper, Rochester, N. Y.

651,388. Artificial tooth, Finis E. Roach, Chicago, Ill.

651,922. Dental instrument, Wm. E. Harper, Chicago, Ill.

652,047. Artificial tooth, Nelson T. Shields and G. F. Jernigan, New York, N. Y.

652,197. Dental heater, Willie F. Slack, Northwood, N. H.

652,719. Fan attachment for dentists' fountain spittoons, Jacob F. Mayer, assignor of one-half to J. M. Cornyn, Philadelphia, Pa.

652,404. Dental appliance, Lee C. Sharp, Omaha, Neb.

Trade marks:

34,765. Certain named dentists' supplies, Dental Protective Supply Company of the United States, Chicago, Ill.

Copies of the above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

"DOCTORS OF DENTAL SURGERY."

A number of Sidney chemists and dentists have recently received an interesting typewritten circular, purporting to emanate from the "special Australian representative" of an American institution, which, apparently, is prepared to be lavish in its distribution of dental degrees. The following is a copy of the circular (omitting names and addresses):—"Dear Sir,—I have pleasure in informing you that I have been instructed by the faculty of one of the leading medical and dental colleges in the United States, who desire to extend their sphere of usefulness throughout Australasia, to intimate to leading dentists in these colonies that they are prepared to enroll them 'ad eundem gradem' in their college as Doctors of Dental Surgery. Should you care to join their roll, kindly notify or call upon me as soon as possible, and oblige, yours faithfully, ————, Special Australian Representative."

TO THE EDITOR.

Sir:—In view of the circular published by you, I think it opportune to enlighten the public somewhat with regard to dental education in America, and I shall be as brief as possible.

Throughout the United States, with its 70,000,000 inhabitants, there are some twenty-five dental colleges which are controlled by what is termed "The American Association of Dental Faculties." This association regulates the length of the college year (identical with that of our local University), the subjects to be taught, the number of lecturers to teach them, and the standard of proficiency, together with the practical work required of each student. Having passed successfully three annual examinations, the student is awarded a diploma and a degree of D. D. S. Before, however, he is allowed to practice in any other State, he is obliged by law to pass a further examination before a board of examiners appointed by that State, so that the public is doubly protected.

Now for a word regarding "bogus" colleges. As most people know, each State of the Union is controlled by its own legislature, and for the same reason that the authorities of one or two Southern States snap their fingers at the barbarous practice of lynching an offender, the legislatures of one or two inland States see fit to grant charters to colleges whose purposes are not characterized by the strictest integrity. Fortunately for the American public, the law of State board examinations protects them from these "ready-made" dentists from "way back;" but unfortunately—very unfortunately—the unprincipled foreign student finds the "bogus college" a veritable haven of safety and its diploma a comfortable cloak to ignorace.

What is our remedy? Let the people of New South Wales appeal to their legislature for protection. Let them demand a State board of examiners to prevent the inrush of incompetent men, not, forsooth, from the much-talked-of "bogus" college, but from their own midst. By the time that is accomplished the evil of the "bogus" college will have been overcome. The Association of Dental Faculties is doing its best in America, and to that end a representative—Dr. Burne—has lately been appointed to further their efforts in the Australasian colonies. Yours, etc.,

May 16. W. SEPTIMUS HINDER, D, D. S.

These letters appeared in Sidney, New South Wales, recently, and we presume they refer to some one of the numerous branches of the bogus Independent Medical College in Chicago.

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

DENTAL JURISPRUDENCE.*

BY E. D. BROTHERS, B. S., LL. B., CHICAGO, ILL.

The subject assigned to me for discussion is so extensive as to make it impossible to touch upon every phase of it in the short time allotted to this paper, and it has been with considerable difficulty, therefore, that I selected certain topics bearing upon the general subject.

(a) *What the law implies from the fact of holding oneself out as a dentist.* Law is a growth and development. It is the product of the highest reason applied to the creation of rules for the regulation of the conduct of men in civil society. The statute laws by which we are governed form but a small part of the great body of laws to which we are subjected. In jurisprudence we speak of presumptions of fact and presumptions of law; the latter are included in the former, with but few exceptions, but not all presumptions of fact are so recognized in jurisprudence as to become presumptions of law. As regards presumptions, however, whatever is reasonable may be said to be legal. Thus, it is reasonable to suppose that a man intends the ordinary, natural and probable consequences of his acts, and the law recognizes this fact by embodying it in the jurisprudence of our country.

Into all legal relations the law enters and gives them color and significance. The law recognizes that spoken language is not the only means of expressing thought or conveying intentions. There may be an agreement between parties with no utterance whatever from either, their acts constituting the basis on which the law erects a contract as binding upon them as though all the terms thereof had been specifically stipulated in oral or written language. Thus, a patient comes into your office, and, without saying a word, seats himself in your chair; you, without saying a word, examine his mouth, find that he is in need of a filling, and proceed to do the work. After the services have been rendered the obligation on the part of the patient to pay you therefor is just as sacred and binding in law as though he had expressly stated to you what he wanted and you had then and there settled the terms of the services before any work whatever had been done. The feature of the contract implied by law is that the patient agreed to pay you for the services what they were reasonably worth, the custom of the locality and the usual charges for such services in the locality being taken into consideration.

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*Read before the Chicago Dental Society, June, 1900.

For the necessary protection of society, the law sometimes goes further in its presumption than presumptions of fact, as in the case of a thief who has stolen property; doubtless there was nothing further from his intentions than the intent to pay the lawful owner what the article stolen was reasonably worth; yet, if the owner should sue him for the value of the goods taken, he would not be permitted to state that he did not intend to pay therefor; and the owner would be entitled to recover the reasonable value of the goods.

If a man contracts to build my house, shoe my horse, doctor my family, make my clothes, or render any other services, professional or otherwise, he impliedly stipulates, as a matter of fact, that he has certain qualifications specially fitting him to do the particular work even though he says nothing whatever relative to such qualifications; and the law seizes upon this presumption of fact, makes it a part of the agreement and requires him to use this special knowledge in the services which he has undertaken to perform. Here, also, law is founded on reason. That a man pretends to be a blacksmith does not necessarily raise a presumption of fact that he is versed in astronomy or skilled in the use of languages, but it does imply that he knows something about manipulating iron and he is held, as a matter of law, to have some knowledge thereof. If he pretends to be a dentist there is a presumption that he has a certain specific skill and knowledge pertaining to that profession. In his work on "Medical Jurisprudence," Ordroneaux says:

"That which particularly distinguishes professional services from ordinary mandates is the quality of special knowledge or skill entering into them. Indeed, this constitutes a condition precedent to their exercise and is always included, by implication, within the meaning of the term designating the practitioner of any learned vocation. The lawyer means, legally, the person skilled in the knowledge of the law; the physician, one skilled in the science and art of medicine, and so with all other professions. Hence, it may be stated as a general proposition that every professional man, being thus specially instructed in some branch of science or art and publicly announcing himself a practitioner of the same, impliedly agrees to bring to the discharge of his duties the ordinary skill of his profession, which is the lowest standard of capacity tolerated at law."

The relation of dentist and patient is based upon confidence, and, in advance of services rendered by the dentist or personal investigation made by the patient, rests upon the belief created by public notice of the qualifications implied by the fact of soliciting patronage as a dentist.

The dental practitioner is an absolute guarantor of his own proficiency to the lowest extent necessary successfully to perform the work ordinarily done by dentists. The law does not imply, however, that he stipulates for successful treatment in all events. The law presumes from his act an agreement by him to bring to the discharge of his duties the ordinary skill of his profession which, in effect, means the lowest standard of capacity tolerated by law. The doctrine as laid down by Chief Justice Tyndall in Lanphier vs. Phipos, 8 Car. & P. 478, is now universally adopted by our courts. He there says:

"Every person who enters into a learned profession undertakes to bring to the exercise of it a reasonable degree of skill. He does not, if he is an attorney, undertake at all events to gain the case; nor does the surgeon undertake that he will perform a cure; nor does the latter undertake to use the highest degree of skill, as there may be persons of higher education and greater advantages than himself; but he undertakes to bring a fair, reasonable and competent degree of skill. And in an action against him, by a patient, the question for the jury is whether the injury complained of must be referred to a want of a proper degree of skill and care in the defendant or not. Hence, he is never presumed to engage for extraordinary diligence or care. As a general rule, he who undertakes for a reward to perform any work is bound to use a degree of diligence, attention and skill adequate to the performance of his undertaking according to the rules of the particular art. The degree of skill arises in proportion to the value and delicacy of the operation; but he is in no case required to have more than ordinary skill, for he does not engage for more."

It is natural to hold men to an accountability corresponding to what they claim to be able to do.

A specialist is presumed to possess greater knowledge and skill in his line than the general practitioner, and, therefore, the law holds him to a higher accountability. These presumptions arise without the aid of the contract actually stipulated between the parties. Of course, a professional man may assume, by special agreement, to possess an extraordinary degree of skill or an extraordinary amount of knowledge, and in either event he is bound by his contract, and may be liable to his patient for any injury caused by his lack of such extraordinary attainments.

(b) *The liability of a dentist to his patient.* The law not only presumes the possession by a dentist of special knowledge and skill, but also requires of him, in the treatment of his patient, to use that knowledge and skill with ordinary care. It is not sufficient, therefore, that he has certain qualifications, he must use them as an ordinarily prudent man would use them under like circumstances.

In the case of Leighton vs. Sargent, 27 N. H., 460, the court says:

"A person who offers his services to the community generally, or to any individual, for employment in any professional capacity as a person of skill, contracts with his employer:

"1. That he possesses that reasonable degree of learning, skill and experience which is ordinarily possessed by professors of the same art or science and which is ordinarily regarded by the community and by those conversant with that employment as necessary and sufficient to qualify him to engage in such business.

"2. That he will use reasonable and ordinary care and diligence in the exertion of his skill and the application of his knowledge to accomplish the purpose for which he is employed. He does not undertake for extraordinary care or extraordinary diligence any more than he does for uncommon skill.

"3. That, in stipulating to exert his skill and apply his diligence and care, he contracts to use his best judgment."

Of course, these rules do not apply to a case in which the person rendering the services does not pretend to possess the skill and experience of a practitioner in the profession within whose scope such services are included, and is known by the recipient of these services not to make such pretense. Thus, a friend, who, in case of toothache, volunteers advice and assistance to relieve the distress, does not thereby undertake to possess the knowledge and skill of a dental practitioner; and where there is no undertaking of skill, the mere want thereof does not create a liability if injury results to the recipient of the services by reason of deficiency in this respect.

Shields vs. Blackburn, 1 H. Bl., 158.

Beardslee vs. Richardson, 11 Wend., 25.

(c) *What is the liability where professional services are rendered gratuitously?* When a person pretends to be a member of a profession, solicits patronage therein and renders professional services to those who offer themselves by virtue of such solicitation, he is liable to a person who, in the course of his treatment, is injured because of a failure to meet the requirements as to knowledge and skill of the profession, even though his services are gratuitous.

Fish vs. Kelly, 17 N. C. (N. S.), 194.

It is no defense to an action for malpractice against a dentist that the injured patient did not employ him but that the services were rendered at the request and employment of a third person, because when he undertook to render the professional services to the patient, the law imposed upon him certain duties, and default therein on his part resulting in damage to the patient constitutes a cause of action.

Pippin vs. Sheppard, 11 Price, 400.

Gladwell vs. Steggall, 5 Bingham (N. C.), 733.

If the plaintiff shows that the services were rendered professionally, it is no defense to a suit for damages for negligently injuring the plaintiff during the course of the treatment that the services were rendered gratuitously.

Wilson vs. Brett, 11 M. & W., 113.

McClelland's Civ. Malp., 520.

Most of the authorities cited in this paper are cases involving physicians, but the same rule of law that applies to them will apply to dentists. Dentistry is one form of medical and surgical ministration. In fact, as long ago as 1863 the courts of North Carolina, in the case of Hunter, reported in 60 N. C., held that a dentist was a physician within the meaning of that act of Congress exempting from service in the army "all physicians who are now, and for the last five years have been, in the actual practice of their profession."

Hunter was a regularly educated and graduated dentist, which fact, taken in connection with the scope of his work as a dentist, was the decisive point in the case. Whether a person held himself out as a practitioner in the profession in whose domain the services are included is a question of fact to be determined by the circumstances in each particular case.

(d) *Malpractice.* Malpractice is a question not so much of want of skill as of failure to use the care and means which, under the circumstances, a reasonable, prudent and skillful practitioner would have used. In practice the question is not what did the dentist know, but what did he do? It may be very difficult to show that a dentist was not sufficiently skilled in his profession properly to treat the particular case, while it might be easy to show just what he did and what he accomplished as the result of his efforts, and that different things would have been done and different results obtained by ordinarily prudent dentists. The question of the knowledge and skill of the defendant in a suit for malpractice is usually eliminated from consideration.

In order to maintain an action for malpractice against a dentist it is necessary for the plaintiff to show:

1. That injury to his health or body resulted from the bad treatment of his case by the dentist.

2. That this evil result should have been foreseen and avoided by the defendant. It will not do for a patient to show that he became ill in health or body or that the malady grew worse after the treatment; he must show that the conditions of which he complains were the result of improper treatment by the dentist. The plaintiff may show (a) that the dentist did something which a reasonable and prudent practitioner would not have done; (b) that he failed to do something which, under the circumstances, a reasonable and prudent practitioner would have done; or, he may show both conditions, and, in any of these

events, the dentist will be liable for all damages resulting to the patient.

Malpractice can be affirmed of a dentist only where he set aside established principles of his profession, neglected to employ means which are usually employed by prudent dentists in his locality under similar circumstances, or was negligent in the application of his skill and knowledge.

A dentist is liable to a patient for an injury caused by want of skill in an assistant whom he permits or authorizes to do professional work for the patient (see Hancke vs. Hooper, 7 Car. & P., 81); and on the other hand, he may recover for services rendered to a patient by an assistant working under his direction, whether the assistant is a licensed dentist or not.

See People vs. Monroe, 4 Wend., 200.

A GOLD CROWN WITH CARVED SOLID CUSPS.*

BY JOHN EGBERT NYMAN, D. D. S., CHICAGO, ILL.

The most enthusiastic devotee of porcelain crowns must admit that they will never altogether supplant those of gold. Articulations are frequently met where the bite is so short as to contraindicate the insertion of any kind of a porcelain crown, therefore the writer firmly believes that the gold crown will always be with us. He is also profoundly impressed with the fact that the cusps should be solid, as in spite of accurately articulated models and carefully adjusted cusps there are oftentimes peculiarities of lateral motion in mastication which cannot be foreseen, and which necessitate the grinding of the cusp at some point, sometimes even to the depth of a thirty-second of an inch, which would mean the perforation of any shell cusp. The advisability of resorting to cusps specially carved for each case has been so admirably set forth by my friend Dr. Goslee that there is no need of my entering upon the discussion of that point. That which I shall present to you to-day is a method evolved by experience for the construction of a gold crown with carved solid cusps in the simplest and most direct manner capable of attaining the desired results, both mechanical and artistic. We will assume that the root has been prepared in the manner that is at present deemed proper. A band of 29 gauge, 23 karat gold, technically known as B. & W. gold, is adapted to the root, and allowed to extend below the free margins of the gum about a thirty-second of an inch. It is then burnished into contact with the adjacent teeth at the proper point so as to preserve the interproximate space, and is cut down low enough to allow the insertion of the cusp, according to the judgment of the operator. The band is then slipped off and trimmed horizontally flat on its occlusal edge, replaced upon the root, and a bite and impression taken at one and the same time in modeling compound. After inserting the band in the impression, fill up the interior of the band with wax, so that it may readily be removed from the model. The articulating model having been obtained, a small piece of modeling compound is softened by heating, placed within the band, and the antagonizing cusps forced into it. The band and modeling compound are removed from the model, and with the impression as a guide the cusps are carved correspondingly. The writer prefers modeling compound to plaster because it carves with less danger of crumbling, and there is no danger of it sticking to the antagonizing cusps when they are forced into it. In very warm weather this will have to be dipped in ice water from time to time to prevent it from becoming too soft as you carve it. The cusp having been carved to the satisfaction of the operator, it is trimmed slightly at four opposite points so as to expose the occlusal edge of the band, forming slight shoulders at these points.

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*Read before the Illinois State Dental Society, May, 1900.

An impression is then taken of the cusp in plaster, allowing it to extend up on the band a slight distance. In about five minutes this may be removed, and the plaster impression scraped down with a steel straight edge to the slight shoulders, indicating the position of the exposed edges of the band. The impression is then dusted with soapstone, the excess blown out, and a piece of moldine that will just about fill the impression is forced into it. The impression is then inverted and pressed down upon a small slab of steel. Upon removing it from this, a cusp of moldine identical with the one carved in modeling compound will be found sticking to the steel slab. This is dusted with soapstone, and the excess blown off, a rubber ring placed about it, and Mellotte's metal poured on to it.

Into the counterdie so obtained a piece of 31 gauge B. & W.

23 karat gold (which has first been thoroughly annealed, and oiled to prevent the lead shot used in swaging from contaminating it) is swaged. This gold cusp is inverted upon a block of asbestos, and filled with fluxed pieces of 22 karat gold solder. This is melted by means of what is known as the soft flame of a gas blowpipe, that is, that flame which has a little color at the end, in contradistinction to that purely colorless one known as the Bunsen flame. Additional solder is added and melted until the cusp is full. The surplus of the cusp is now cut away, and it is then filed absolutely flat. It is now adjusted upon the band and the articulation tried. If everything is satisfactory, mark the outline of the band on the cusp as it projects over the side, and, removing case from the model, maintain them in their proper position by any method that you desire while they are soldered with coin solder, using a large flame which will completely envelop the entire crown. If you are expert with the blowpipe, you may now contour your crown at any point that you wish by melting on gold solder. If a great deal of contour is desired, you had best first burnish on an additional piece of gold plate, thoroughly fluxed, so that when the case is heated up the adhesiveness of the flux will hold it in place in spite of the blast of the blowpipe. This additional piece of plate will hold the solder in place, whereas if a large contour was formed with solder alone, it would be very apt to run to the lowest point of the crown while you were soldering some other section of it.

Quite frequently we meet cases difficult to adjust bands to, where the root is small and the space to be filled quite large, the natural tooth crown probably having been one with a great deal of contour. If the case has been a difficult one to fit, we may well understand an operator's reluctance to touch the band with a pair of contouring pliers or even to attempt to burnish it in the contact with the adjacent teeth. These two steps may be entirely obviated by simply taking the bite and impression of the band as it is upon the root. After the models have been obtained remove it from the model, fill the interior of the band with modeling compound, chill it in cold water until it is as hard and stiff as possible, and then telescope over this band another one of 28 gauge gold, allowing it to extend within about a thirty-second of an inch of the gingival edge of the band and flush with the occlusal edge. Then, after the cusp has been carved up and removed from the impression, cut out the impression so that the resulting gold cusp obtained from it will entirely fill the space between the two teeth. Then, in soldering, fill up the triangular space made by this projecting edge of the cusp with solder, and likewise fill the similar space left between the edge of the original band and the telescoping one so as to give gingival contour to the finished crown.

After the crown has been polished it is gold plated, not to hide any defect which there may be in the case, as some may suppose (for plating merely makes these more conspicuous), but to give a smooth, satin finish to the work that it is impossible to obtain otherwise.

If the crown is set with cement, as is usual, coat the outside of it along the gingival edge with carbolated vaseline. This will do much to allay the pain so often caused by the cement, and will also prevent the cement from adhering to that portion of the crown beneath the gum, and which is so often the cause of the subacute gingivitis found about artificial crowns.

If the methods advocated to-day may seem complicated to some, I assure you that to one thoroughly familiar with them they are the simplest, easiest and quickest methods by which the desired results may be obtained.

Habits Incident to the Dental Profession.*

By G. W. Entsminger, D. D. S., Carbondale, Ill.

The habits of the dental profession are in general not unlike the habits of other people or professions, but I want to call attention to a few of the good habits and also to some of the evil habits incident to our profession. In doing this I shall make three distinct divisions of the subject in hand, and shall class them as habits general, habits practical and habits personal.

Under the first division I will speak of the one good habit some of us have in attending to the welfare of our noble calling or profession, first, by being ethical in our deportment at home or abroad; secondly, by regular or frequent attendance of association or society meetings. Now, some of you may say that I am mistaken by calling it a habit. I will reassert that it is a habit with nine out of ten of us. Glance over the reports of the meetings of this association and note the men that have attended most regularly. Go to them and ask why they were here so often, their reply will most likely be, "Oh, I have formed the habit of attending and would not rest easy unless I should go." A good habit, say ye not? Allow me to call special attention to one or two of our honored members who have contributed so much to this society, and not only to this one, but to many societies in other States and countries. I will first refer to Dr. George H. Cushing, and you are all reminded of how he was wedded to this great Illinois State society from its very conception to the present time, and of how for more than thirty years he had not failed to attend the annual meeting of this society, and we all know that to-day while he is not here with us in body, he is with us in his thoughts and best wishes. Again, let me refer you to our Dr. G. V. Black, the stalwart, not only for American dentistry, but for the brothers across the water. We are all proud of these elder brothers, or I had rather say fathers, in dentistry, and were we to ask them why so interested and attentive to these meetings, no doubt their reply would be, *It was a habit.* Let me go a step further along the line of attending the meetings of our profession. While we may call it a habit, I will say it should be more than a habit; it is a duty we owe, first, to our profession; secondly, to our clientele and community; thirdly, to our own individual selves. It is true we may not all place much of an estimate on our ability to help in this work of advancing and elevating our profession, but we have heard it said from our most learned men that they have received many a good point from the unpretending and seemingly uneducated. We may think we are of no consequence; we may by chance, by accident, or by some other way, do some brother a good turn by being near to him and mingling our thought with his thought. That is the *why* for these gatherings.

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*Read before the Illinois State Dental Society.

Again, we must of necessity strive to get more knowledge in the science and art of dentistry. It is so easy to get in the rut and do as we have done for years and think we are good enough. But, my brother, listen; the up-to-date man of ten years ago is to-day a back number if he remains in his den and allows no one of the craft to visit him, or to visit none of the craft, and we no doubt have them by the score in this our own great State. A bad habit, so say we all, and our patrons suffer for it, both from a physical and financial standpoint.

Another habit I wish to make mention of, and it is along the line of ethics, the habit of which so many are unthoughtful, and that it is the attractions to make business. There are so many ways in which it is done. Some of the most common are newspaper cards, hotel registers, programs for entertainments. These I suppose are respectable "ads" compared with board fence and billboard "ads," but to the strictly ethical man there is very little difference; and I am going to say right here that there are few of us who can say "not guilty." Now you may say that is threshing over old straw. Perhaps so, but my observation is that the threshing does not come any too often.

Now for a few of the practical habits, and I know full well that you from the cities could do this part of the paper up in better form than one from the country, but I am going to talk for the benefit of the country fellows. One of the most noticeable habits which I think should be stopped, is the display of 22 karat gold in the mouths of our patrons. It does seem a crime to put so much of the valuable metal up for a show on the part of patient and for an ad for the doctor. I will admit there are a few instances where it is admissible, but how much is there that should be left out. There is nothing more amusing to me than to have an applicant for a gold tooth. They have all manner of excuses for why they want it, without saying it is for show. Don't ask me if I have always sent them away.

Another habit on the part of the dentist is the advocacy of bridge work in nearly all cases. As has been said again and again, bridge work is all right with proper foundation and good surroundings, but the habit has become so general that many a man has come to grief; it may be a double case of grief, too.

Again, let us give the habit of devitalizing all nearly exposed pulps some attention. I know men who say that whenever a tooth has given any pain whatever, in goes the arsenic. It has become a habit. On the other hand, I have found a few who try to cap, and do cap all exposed pulps, from habit perhaps, and they, too, have come to grief. Now, I believe there is a middle ground to be taken and we should strive to find it. We must have that habit of being conservative and not being hasty in our conclusions. Give a little time for exposed pulps to recuperate, also the aching tooth with pulp nearly exposed. No doubt we will miss it part of the time in either kind of cases, but go a little slow; change your mind now and then if treatment will give you reason for doing so.

Another habit I find to be prevalent among our country brethren, and that is to give no attention to the deciduous teeth, but to extract when painful. To be sure, the dentist does not do as much damage along that line as the family physician, but there is a great need of a reform along this line and it is a question yet to be settled as to the best way of settling it. We all agree that the parent should be taught to bring the child early to the dentist, but so far the habit of bringing is quite neglected, and I do hope we may yet get a specific plan for the education of parents on this very important branch of our practice.

One more habit under this head, a habit which I have watched for some time, and that is the too free use of separators preparatory to filling. While in perhaps the majority of cases the separation is all right, I feel quite confident the life of many a tooth has been taken by the use of separators. I am glad to report that I have not been a user of the Perry separator or any of the powerful ones, but I have used the Elliott quite a little, and even with that weak instrument I am not sure but I have committed murder in a few teeth. The theory is strangulation of the pulp at apex, result of irritation and inflammation. The habit has been formed by instructors telling the boys to get plenty of room to work in. Better get in the habit of less room and smaller plugger points and a little more time. Since I have formed the above habit, I can safely say I find fewer dead teeth after filling has been in a few weeks or months, than I did when I tried to get more space.

Now for a few personal habits, and I hope I may not be the recipient of a brickbat bouquet when I am done. I do not like to pose as a reformer, but I deem it a duty to tell you what I have heard scores of people say about dentists and their personal habits. "Old straw again." We will take the most common habit, which is the tobacco habit. The time was when almost every dentist was more or less guilty, but I believe to-day there is less of both chewing and smoking in the profession; but there is yet too much. Now the larger per cent of our patrons are ladies, and while a few like the odor of the weed, there are many more to whom it is very obnoxious. We who do not use it have a decided advantage in knowing what they think about you fellows who do use it, and while they patronize you, they do it under somewhat of a protest. They are kind enough to respect your feelings, but if you were to ask them their candid advice as to whether or not you should use tobacco, I think you would soon use less of it, if you had respect for the one giving the advice. Aside from this reason I know that many an operator has lost the cunning and sense of touch by the smoke habit. I have seen a few that had the appearance of palsied men, all from the smoking of a strong cigar. Don't you know that you are about three or four times more shaky than you think you are? I have seen men shaking as if an ague chill had them, and tell them that they were nervous and they would reply, "there is not a word of truth in it, that they were entirely steady and you were mistaken." Now, as I said before, I do not want to come up here and injure the cigar and tobacco factories, but I am giving some facts gathered from personal observation. At this writing a personal friend of mine has taken his bed and has suffered a stroke of paralysis. I do not say positively that tobacco did it, but one thing I do know, he was an inveterate user of it and a young man less than thirty-five years of age. Now such things should be noted and given as a warning by us who know, then if some brother gets himself into this predicament he cannot say he has never been advised; and I truly believe we are all too slow to give expression of our thoughts for good, while on the other hand boldness is to the front for the side of evil. Let us be men, and if any of this is good for the soul and the body of an individual why not for the profession to which we belong, and vice versa, with evil.

One more thought and then I am done. The habit we, as individuals, have for being caught by every conceivable fake or fad that comes along. We are set down as being easy to catch, and every new thing that comes along is first rushed to the dentists of the town. It is a fact we are a liberal sort of a fraternity, but habit of being so has much to do with it. Why? I know a man down in Southern Illinois who said to his dental depot, "Whenever anything new comes out send it to me at once." Well, he had lots of experience with new inventions but they got the most of his dollars. To-day his request is the reverse. It was an awful mistake, but the habit got hold of him and he thought it would land him on the top rail and so it did, but with fewer dollars and an abundance of experience with new things. Now these of course are extreme cases, but they are facts. Again I will say, find the middle ground, let the other fellow investigate a little and watch the result of his investigation. No doubt we could all tell some pretty good sells on ourselves if we were disposed to do so. And now I am done and thank you for your patience and attention to this somewhat disjointed and feeble effort.

DENTAL LEGISLATION IN THE PHILIPPINE ISLANDS.

By Louis Ottofy, D. D. S., Manila.

INTRODUCTORY.

It appears that some rules governing the practice of dentists, phlebotomists (blood-letters) and midwives were in force prior to 1853, that these rules operated in an unsatisfactory manner, and that therefore presentation of this fact was made by the authorities in the Philippine Islands to the home government in Madrid, and that in reply thereto the following was received:

ROYAL DECREE OF SEPTEMBER 22, 1853.

"*Excellent Sir:*—Recognizing the expediency of the suggestions made in your communication No. 572, dated July 7th last, relative to proposed alteration of the University regulations concerning the requirements for the purpose of obtaining the title of "dentist," "phlebotomist" or "midwife," agreeable to the propositions made by the Inspector of Education, the Queen dictates the following order:

1st. All who may desire to practice as dentists, phlebotomists or midwives, will be required to prove that they have practiced their respective callings for at least three years, under the tutelage of an examined professor.

2d. To determine this tutelage, applicants are required to matriculate at the University, prior to the commencement of the three years of tutelage to pay a fee of seventeen pesos[1] for each matriculation, and to state the name of the professor[2] under whom they intend to practice, in order that the Secretary of the University may make record of the same.

3d. Only the authorized professor thus designated, shall be empowered to furnish annually a certificate of practice.

4th. Those residing outside of Havana,[3] but within its jurisdiction, may register before the respective subdelegates of medicine and surgery, who are authorized to collect the fees, and will promptly remit the same to the Treasurer of the University, together with the name of the professor under whom the applicant desires to practice.

5th. Candidates for the title of dentist or phlebotomist are required to be not less than eighteen years of age, present a parish certificate, a testimony of good moral character and a tax receipt from the local authorities. Candidates for the title of midwife will not be admitted for examination until they have complied with Art. 89 of the University regulations.

6th. Candidates for the title of phlebotomist or midwife are required to comply strictly with, and be subject to the requirements of Arts. 86 and 90 of the regulations, concerning examinations and the payment of fees.

7th. Candidates for the title of dentist, previous to the examination, are required to deposit with the secretary the sum of fifty pesos, out of which shall be paid the fees and stamp duties as required by Art. 86, for the examination, secretary, etc., leaving the remainder to be added to the funds of the treasury.

8th. Before being admitted to practice their respective professions, the candidates shall be subjected to an examination, consisting of an hour devoted to theory, principles and rules, and an hour devoted to the practical part of their respective professions. These examinations should be conducted in a hospital or such other place as the examiners may designate.

By royal decree, this order is referred to you for intelligent enforcement, with the observation that Her Majesty approves of your suggestions, cautioning you at the same time, that should you consider it essential to modify any of the royal decrees, royal orders or regulations relating to public instruction, or in any other branch of service, to make such limited modification, proposing to Her Majesty such matters before permanently enforcing them, in like manner as you have done in this instance."

The next enactment, so far as it is possible to ascertain, is as follows:

PROFESSIONAL STUDIES OF DENTAL SURGEONS.

"Royal decree of June 4, 1875. Studies, competency and title of the dental surgeon.

Art. 1. The art of dentists shall hereafter constitute a profession under the name of dental surgery, and for the exercise of which a special diploma[1] *will be issued.*

Art. 2. The diploma of a dental surgeon shall authorize him to treat diseases of the mouth produced by the disorders of the teeth, and for the performance of such operations as are necessary for the cure thereof. Those practicing this profession shall not engage in the treatment of any other diseases of the human body.

Art. 3. In order to obtain the aforesaid diploma it will be necessary to show efficiency in the following branches of study.

1. A knowledge of the anatomy and physiology of the mouth, and a sufficient elementary knowledge of general physiology to enable the applicant to form a general idea of the functions of the organism.

2. Dental pathology, or description of the ailments of the teeth and of diseases originating in the mouth, with their causes, symptoms and preventive measures.

3. Dental operations, comprising those performed on the teeth themselves and on other organs of the mouth affected by the ailments of the teeth.

4. A theoretical and practical knowledge of the systems and methods employed in the construction of plates and apparatus to replace the teeth or other injured portions of the mouth.

Art. 4. When the revenues will permit and the government shall esteem such action convenient, courses of study will be provided in public establishments to enable the acquirement of qualification for the practice of this profession.

Art. 5. In order to determine the efficiency attained as a result of private study, and to give the same academic value, a jury will be convened, composed of three doctors of medicine and surgery and two dental surgeons.

Art. 6. The government, under the advice of the Board of Public Instruction, will prepare schedules of examination and determine the extent of necessary efficiency.

Art. 7. To candidates who give satisfactory evidence of their ability, as determined by the examination and exercises, diplomas as dental surgeons will be issued with the same formalities with which other professional diplomas are issued.

Art. 8. Candidates for the diploma of dental surgery will pay as an examination fee the sum of 50 pesetas, and as a diploma fee the sum of 200 pesetas.

Art. 9. Whenever the government shall deem such action necessary, it will make the possession of a diploma obligatory on all those who practice the profession of dentistry, making an announcement of such contemplated action two years previously.

Art. 10. Dentists now practicing, and who by their merits and services shall be deemed worthy in the judgment of the Board of Public Instruction, may be authorized to continue to practice."

It then appears that a royal order was promulgated on May 28, 1876, providing for certain inspectors and subinspectors of dentists, under certain regulations, a copy of which I have been unable to secure, and as it was revoked in 1881, as shown in the following paragraph, interest therein is only transitory:

" Royal order of December 6, 1881, suppressing the offices of inspector and subinspector of dental surgery.

The royal order of the 28th of May, 1876, is hereby revoked, and the offices of inspector and subinspector of dentists are in consequence suppressed. Professors of dental surgery will be subject to the inspection and care of subdelegates of medicine, and will be obliged to exhibit to the latter the diplomas which authorize them to practice their profession in accordance with Articles 9, 24 and 26 of the regulations referred to."

It further appears that some who were not so authorized engaged in the practice of dentistry, and in response to a petition of legal dental practitioners, there was issued:

" Royal order of February 11, 1886, entitled ' Presentation of Diplomas to Health Inspectors.'

The Royal Board of Health, to which was referred a petition presented by various dental surgeons, begging that the practice might be limited to those authorized therein by the possession of the proper legal diploma, has replied as follows:

In accordance with the two royal orders of October 1 and December 16, 1881, and the royal decree of March 27, 1855:

Considering that the profession of dental surgeon may be practiced only by those holding the proper official diploma; and

Considering that, according to Article 1 of the aforementioned royal decree of March 27, 1855, all professors of jurisprudence, medicine, surgery, and its different branches, and pharmacy, so long as they have a definite establishment for the practice of their profession, are obliged to present their diplomas at the college or at their respective subdelegations, it is the opinion of the department that the board should advise the government of his majesty:

1. That it is necessary to issue a general order requiring all persons practicing the profession of dentistry to present within the term of thirty days their professional diplomas to the subdelegations of medicine and surgery in order that the same may be recorded in the register to be kept in said offices.

2. That after the expiration of this term the said subdelegations will proceed to denounce to the governors all persons practicing the profession of dental surgery without being duly authorized, and will denounce to the courts of justice persons who have assumed or may assume the character of a professional with a diploma lacking official validity in accordance with the provisions of the penal code.

And so be it decreed."

"Royal Order of May 1, 1890. Examinations of dental surgeons.

Rule 8. The tribunals for the examinations for the profession of dental surgeon shall be appointed by the Rector of the Central University on motion of the Dean of the Medical Faculty. For the meetings of June and September of the present course the tribunal named by royal order of November 25 last, shall continue to operate."

The only modification in the law as found at the time of the American occupation, has been made by the Board of Health which is in charge of the military authorities, and under an order issued by the Board of Health in August, 1899, all practitioners of dentistry registered themselves in the office of the board, and complied with other rules hereafter mentioned, after which they were entitled to continue in practice. In addition to the above requirements affecting only those then in practice the following modification has been made :

Royal Order of December 6, 1881, requiring dentists to exhibit their diplomas to a subdelegate of Medicine, is amended, and *the diploma of dental practitioners must be registered with the Board of Health.*

Royal Order of May 1, 1890, providing for a tribunal to conduct the examinations, said tribunal to be "appointed by the Rector of the Central University on motion of the Dean of the Medical Faculty," is revoked, and in place thereof, *the Board of Dental Examiners is appointed by the health authorities, the President of the Board of Health being ex-officio a member of said board.*

Other laws and ordinances of the Islands make the following further requirements of a dentist who desires to engage in practice, having previously registered with the Board of Health:

"*1. A dentist cannot enter upon the practice of dentistry until he has obtained a license authorizing him so to do, from the license department. The fee for said license is 3 pesos and 20 centavos, and must be renewed and a similar fee paid annually.*

2. He must present himself at the Internal Revenue Office and secure a 'Patente' or tax receipt, for which the total fee is 38 pesos and 12 centavos per annum, this sum being determined as follows:

Industrial tax	P. 33.00
Municipal tax (10 per cent of above)	3.28
Stamp duties, etc	1.84
Total	38.12

This is *payable quarterly in January, April, July and October, in equal installments of P. 9.53 each. Except, however, that at the first payment of the tax only the proportionate part for the current quarter is collected.*

3. It should further have been stated that *prior to the obtaining of the license the applicant must secure at the Internal Revenue Office a personal 'Certificate of Registration' for which the fee is one peseta, and this certificate must be annually renewed.*

The total fees per annum therefore are as follows:

1.	Certificates of Registration	.20
2.	License	3.20
3.	Taxes[5]	38.12
	Total Pesos	41.52"

It will be noticed that the earlier decrees and orders are more or less incomplete and confused. This is due, without doubt, to the fact that these documents were issued from Madrid, often covering a large number of different topics, regardless of their relation to one another, that they were sometimes issued for the government of the Greater and Lesser Antilles, sometimes jointly and at other times separately, and that there seems to have been no effort made to codify and compare these various enactments. For the convenience of the reader, I have placed in *italics* those parts of sections which are now operative, and which at this writing (June 30, 1900) may be said to constitute the dental laws governing the practice of dentistry in the Philippine Islands.

The profession here hopes to secure the enactment of a law which shall be modeled upon the laws now in force in the most progressive States of the Union, and in due time the civil commission, which has entered upon the discharge of its duties, will undoubtedly give due consideration to the subject.

[1] One peso equals 50 cents United States currency; one peseta 10 cents; one centavo a half of a cent.

[2] The term "professor," when it appears in these edicts, is to be considered merely equivalent to what we understand as a "practitioner."

[3] I cannot account for the substitution of the word "Havana" for "Manila," unless it is an error, a similar decree having been sent to Havana at the same time.

[4] The term "diploma" may be translated to what we understand to be "certificate."

[5] $20.76 United States currency.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

A regular meeting was held June 5, 1900.

DISCUSSION ON THE PAPER OF MR. E. D. BROTHERS.

Dr. **Edmund Noyes**: As to discussing the points which have been covered in the paper that has been read, it seems to me entirely unnecessary. I wish, however, that Mr. Brothers would explain, in closing the discussion, whether the very last statement of the paper, to the effect that fees may be recovered for services rendered by an assistant regardless of his professional qualifications, is modified in such States as Illinois, in which the law in regard to the practice of dentistry especially stipulates that assistants in offices must have the same qualifications as principals. I am under the impression that in States having such laws as the one in this State no fees could be recovered under such circumstances, and that an assistant so practicing would be liable as an illegal practitioner.

There is one other question in this relation also, in regard to collecting fees for work done by students, which would come under the same head. The statement regarding it in *Rehfus Dental Jurisprudence* seems to be ambiguous, leaving the matter in doubt. A very interesting aspect of jurisprudence to us at present, in fact always, relates to the special laws in regard to the practice of dentistry, and perhaps an extension of this discussion may properly be upon some points in that relation.

I am not going into the subject to any great extent, but in this country in such matters as the practice of medicine, dentistry and pharmacy, and a good many others, such as the running of automobiles and the qualifications of engineers and pilots, there is a good deal of paternalism in our system of government and the laws which have come into existence. I was struck with that fact last winter, in conversation with a couple of English dentists who are connected with one of the English schools, I believe. They stated to me that in England they did not believe in the propriety, if they did in the right, of the government to determine absolutely who should practice dentistry. The full extent to which the government goes in England is to certify to the qualifications of practitioners, and if anybody chooses to employ persons without such certification, they are at perfect liberty to do so, and persons without qualifications are at liberty to practice if they can find anybody who cares to employ them. I think that in England more than in this country it is common for pharmacists to prescribe medicines, the government not undertaking to restrict or forbid the practice of either medicine or dentistry by unqualified persons, only undertaking to certify to the qualifications of those who are properly prepared. In this country we are going to a much greater length than that, and I think rightly. The present tendency of dental legislation is manifestly toward a greater supervision of the work of the colleges than was undertaken by the first dental laws. The object (and it was very thoroughly accomplished) of dental laws in this country in the first instance was to put a stop to private pupilage. The effect of the earlier dental laws was to send all students to the colleges for their education. It was done by putting such a set of requirements upon practitioners as could best be acquired, most cheaply and readily and certainly, in the colleges rather than the private offices. And generally speaking, all of the better class of practitioners, almost all who could be called reputable, were in favor of this legislation and worked most heartily to send students to the colleges instead of attempting to keep them themselves. Now the time has come, it seems to me, and the tendency is very manifest in many States, that legislation should be framed with some reference to the work done by the colleges, in the same way, or rather for the same reasons that former legislation was framed to have some restraining and controling influence upon instruction given in private offices, and it seems to me that all of the properly equipped and honestly managed colleges that are able to educate men thoroughly for their profession, ought to be found in favor of this sort of legislation, for the same reasons exactly that the better class of practitioners were formerly in favor of legislation which sent students out of their offices into the colleges. This because all of the better colleges will be benefited by such governmental supervision as will authenticate the work they do. It is unquestionably a very lamentable truth at the present time that there are in this country a great number of schools which are so illy equipped and have such inadequate resources in every way that it is impossible for them to give such training to students as they ought to receive and as the community ought to expect that students shall have. It is a question whether this is not so much the case as to hold back at the present time the desirable advancement of dental education. It is a question whether schools of this class are not numerous enough to outvote in the association of faculties the well equipped and really good dental schools. All these circumstances to my mind make it desirable that since we are undertaking to do so much by means of legislation in this country, we should by some means undertake this also. Whether it can best be done by the examination of students holding diplomas, or whether it can best be done by some more adequate and more thorough method of determining the reputability of schools, giving boards of examiners the right and duty to determine the character of work done in dental schools and marking them reputable or not, I am unable to say; but the opportunity and resources of most of the dental boards for such determination are inadequate and almost impracticable. The tendency at present evidently is to accomplish this end by the examination of students holding diplomas. In some way or other it is desirable that it should be done.

There are of course a great many aspects to dental jurisprudence which it is hardly necessary or worth while to spend a great deal of time about, partly for the reason that dentists are mostly a peaceable folk who keep out of the clutches of the law to as great an extent as they possibly can, and it is to be hoped that most of us may never have any occasion to know in close detail the law of malpractice, or very much about the details of what is required of expert witnesses. This much is perhaps right for me to say, which Mr. Brothers maybe did not want to say, that whenever a dentist does really have much to do with the law he had better consult a good lawyer and not depend very much upon the jurisprudence he can get from his course of lectures in college or by reading a text-book on the subject.

Dr. T. W. Brophy: I happen to have in my pocket a clipping from the *Chicago Legal News* of May 12, which gives the decision in a case in the Superior Court of Cincinnati, special term. I called the attention of Mr. Brothers to it a moment ago, who said it had not come to his notice. The decision in this case is not in strict accord with the sentiments expressed in the paper.

I should have said at the outset that I appreciate very much the paper that has been read this evening. I appreciate it because it has come to us with so much vigor, and it expresses to us so much that is of importance to our everyday life. The gentleman has pointed out our liabilities to our patients and the public and their liabilities to us, and it seems to me from the standpoint of practicability it is really the most important subject we could have brought before us; and I am sure the members of the Chicago Dental Society all appreciate the excellent paper that has been presented this evening.

This decision is in the case of Amy Lee Connel vs. the Sisters of the Poor of St. Francis Hospital, of Cincinnati, a corporation maintaining a charity hospital, and held in damages by the patient, who was injured while in the hospital through the negligence of the nurse. This is an interesting case, and I think it should be published in the dental journals so that the members of our profession may have a knowledge of this decision. While it is a medical case, still there would be exactly the same effect upon a case in dental practice were an injury sustained by a patient.

I will read one or two short extracts from this decision, which in my judgment seems to bear upon the paper and the subject under discussion particularly. The plaintiff in this case went to the hospital under the management of the defendant corporation for the purpose of having a surgical operation performed on her by her own physician, who is also a physician in the hospital. She engaged to pay $10 a week for board and nursing while in the hospital. The operation was successfully performed, and subsequently, acting under directions of the physician, a nurse applied hot water cans for the purpose of preventing pneumonia. The application of the cans was made while the patient was unconscious from the anesthetic. One of these hot water cans moved from the position in which it was placed and inflicted a severe burn, of which she was unconscious at the time. She brings this action to secure damages for the burns. It is not claimed that the corporation was negligent in the selection of the nurse. It appears from the evidence, which is not disputed and is admitted to properly describe the nature of the defendant, that it is a corporation organized solely for charity, has no capital stock, no dividends, no surplus on hand; that its income is derived from the voluntary contributions of persons of money and supplies. It has a dozen rooms that it rents to patients able to pay for them a reasonable amount. It is not disputed that the hospital is open to all who apply for its benefits, so far as its accommodations will allow. There is no doubt that this hospital is a public charity, and none the less so because in certain cases it charges for board, nursing and room, as in the case of the plaintiff, who was able to pay for the same. A number of cases are cited in this report, and figures and references to other decisions.

This is not in accord with the closing paragraph of the paper, in which the gentleman states that the assistant of a dentist is responsible. That is to say, the principal is responsible for the assistant's acts, and that if the assistant makes a mistake and injures the patient the principal would be responsible. This decision shows that only the one who renders the service is responsible. When I think of all the schools of dentistry in the United

States, and all that is done in those schools in the management of patients, and how some patients might be injured by young men who are not skilled, I often wonder what the outcome of such cases might be. That is a question I would be glad to have our friend answer in closing the discussion. What is the responsibility of an institution of learning for the action of its students? These questions sometimes come up and they are important. We have in these institutions many persons treated as charity patients. For instance, a patient coming with pericementitis and receiving treatment. Perhaps the condition is such as to go on into a more serious stage and an abscess may form, and following the abscess, or accompanying it, there may be a general osteitis, possibly a necrosis of a considerable portion of the maxillary bone. Supposing that such a patient should appeal to a lawyer and say that when he entered such an infirmary or institution there was no extensive swelling, but a student treated it and such a condition resulted from his lack of skill and bad management of the case. He has sustained a very serious injury, which no doubt would have occurred if he had not been there at all. These are questions that should be discussed, and there should be some well-defined action in the matter so as to outline the responsibility. A number of years ago I was called as an expert in a case in the city of Milwaukee. A young man was called upon by a patient who had a pulpless tooth. He opened the tooth, cleaned out the pulp canal and treated it with an antiseptic dressing. The patient went home and the next day the face began to swell. The patient did not return to the dentist. The swelling extended until it involved the greater portion of the maxillary bone on the left side, suppuration occurred, necrosis of the bone set in and a sequestrum was removed, leaving a large opening in the jaw. This patient procured the services of a lawyer and brought suit against this young man. They had the newspapers of the city filled with the case to the effect that he had committed a very serious mistake; that he was unskillful, and as a result of his lack of skill the patient had sustained irreparable injuries. So the case went on, and finally came to trial. The history of that case was simply this: The woman had the inflammation and the gentleman only removed whatever may have been in the canal, made an antiseptic dressing, and that was all. What he did could not have produced what followed. The court listened to the testimony, which extended over a week. Experts were brought in. Finally the jury was dismissed, the verdict rendered being no cause for action, or something like that. You can see what dangers we are surrounded by all the time, and ignorant people cannot understand these things; they cannot understand why a swelling should follow the treatment of a tooth, the swelling perhaps having begun before the dentist saw the patient, and although he may have employed his very best efforts sometimes he cannot succeed in arresting it.

Dr. C. E. Bentley: There are a few questions I would like to have the essayist answer in his closing remarks, with reference to dental jurisprudence. That is to say, what is the legal status of the dentist in the State of Illinois? What is the liability and permissibility of the dentist in administering an anesthetic? How far, and what are the drugs the dentist is permitted to use as internal medication? And what are the operations; how far is the dentist permitted to go in performing surgical operations? Is it like the law in New York State? As I understand it, there, a patient may go to the individual as a charity patient, the dentist may know the man, know at the time that he is a charity patient, or is not a charity patient, but so long as he has charge of that case he cannot surrender the case until it is properly treated and discharged. I would like to ask the gentleman if the conditions existing in Illinois are the same as in New York?

Dr. J. H. Smyser: There is one question that arises in my mind with reference to an assistant. In the State of Illinois no recompense can be asked for an assistant unless he is licensed. Does the writer in speaking of an assistant mean a licensed assistant or some one who has not a license?

Another question. Is the man or corporation conducting a dental office responsible for his assistant? We have a great deal of trouble in finding out who is responsible in such cases and I would like to know if there is a way to compel a corporation to show the person responsible for the work done in a place.

Mr. Elmer DeWitt Brothers, in closing the discussion, said: I do not rise at this point for the purpose of preventing more questions. I will attempt, however, to answer the questions in the order in which they were presented as nearly as I can remember.

In the first place the closing paragraph of the paper was with reference to the liability of the dentist for malpractice when that malpractice is chargeable, not to the dentist himself, but to his assistant. That was the principal proposition, and I said that by way of compensation for this liability, he is permitted to charge and collect for the pay of the assistant in his office. That proposition, of course, is necessarily to be limited by the statement, if there is no statutory law prohibiting it, or no statutory law requiring that this assistant be a licensed dentist.

Notwithstanding the decision that has been read by the eminent Dr. Brophy, I am still of opinion that you as a dentist will be liable to your patient for any injury the patient sustains by virtue of the malpractice of your assistant. The decision which was read was a case where the assistant, or the person rendering the service and being guilty of negligence, was the servant of a hospital and the nonliability of the hospital, if you will notice, was based entirely and solely on the ground that it was a charitable institution. I will not take the time here to discuss that opinion. Permit me to say that I do not believe that the opinion is sound; I do not believe that a charitable institution, in most circumstances, at least, should be excused for the negligence and malpractice of its assistants, especially if it has a fund out of which it can pay the patient for the injury he has sustained, and further when that patient was not a charity patient but was paying for the services that were being rendered. Some of the highest courts of the land have decided that a hospital is liable for the negligence of its nurses, its internes and all others who are connected with the institution, if by virtue of their conduct any one relying upon them and taking their treatment is injured. I do not wish, however, to discuss the question; that is more a question of law, and I may say it is not one in which you are interested unless you are connected with an institution of the kind. If you are I would be glad to discuss it with you, and even write you a brief upon the point, which might be sufficient to keep you out of considerable trouble in the future. I think, however, the corporation should be liable. Of course, there are some reasons why it should not; the principal reason being that it is a charitable institution sustained by voluntary contributions of the public, and it is better that the single individual should suffer that injury, sustain that loss, than that the general public should suffer loss. Of course, the negligent interne would be liable in any event.

I may say relative to the law in this State, as to whether the assistant should be a licensed dentist, that must be limited. I do not remember the exact wording of the law, but it is limited to cases where the assistant does operative work. What boots it to the public generally, whether you yourself make a set of teeth—do the mechanical work—or have an assistant in the laboratory do it, who is perhaps more competent therein than yourself? The only reason why the law steps in and says to the dentist that you must have only competent practitioners or assistants and that their competency must be determined by their having passed the required examination and received their certificate from the State board, is by virtue of the police power whereby the government may step in and say " for the benefit of the public you can have" only such and such persons to do such and such things. Now what advantage to the public would there be in saying, you must have the man licensed by the State board before he can make a set of teeth, or adjust this or that in the laboratory? The only object of the law is to protect the patient against the negligence of the operator, and I use the term technically. I guess I use the proper term—the one who stands over the patient and works in his mouth and about him, administers medicine, etc. That is the person who the law says must be a practical dentist. And in this State, if I understand the law, if you hope to recover for the services of the assistant operator you may as a precedent to your right to recover, be required to show that the person was a licensed dentist, but further than that you need not go. That is my conclusion as to that point of law.

Relative to students, it would be exactly the same. If the student does operative work, and you attempt to recover for that, you would be required as a precedent to your right to recover, in this State, to show that he was a licensed dentist. I may say lawyers do not attempt to remember the statute laws, the book is always before us. If you ask me a question relative to the statutes of the State I take down my book, though I may have just consulted it. A gentleman called me by phone a few days ago and asked about the law for incorporation. I had examined the law two days before, but I said, "If you ring me up in half an hour I will answer your question." But when it comes to the common law, that is to say, the law founded on common sense, I hope to be able to give an intelligent answer forthwith.

The second question, if I remember rightly, is one which I as an attorney, owing to my relations with a school, have often considered; that is, the liability of a school as a corporation for injuries to patients who come into the infirmary, these injuries being caused possibly by the negligence, at least, we will say, by the treatment of the students. Just how far the law will go there are no decisions in this State to show, and I have had no occasion thus far to present the matter to the court. I will say this, however, and it is the way I have answered the question heretofore: A patient comes into an infirmary of the school for treatment, and knows when he comes in that he is to be operated upon, possibly under the supervision of well read and licensed dentists, but he knows that the work is to be done by those who are not licensed; by persons who announce themselves as students; by persons who announce themselves as learners; by persons who by the very fact of their being there say, we are not competent as yet to go out and practice dentistry without the supervision of some one better skilled in the art and science than we are. And in view of that fact the law will not presume that he is to get as good service, as good care, as he would get if he were to go into the office of a person whom he knew to be a licensed dentist and who was holding himself out as a dentist. The students of the school, or rather the school itself, holds out these students merely as *students*, not as practitioners, and they charge less for their services because of that fact. Therefore, whether the patient actually knows or does not know that the person operating upon him is not a licensed dentist, the law says that the situation or surroundings are such that he should have known, and as a matter of law what a man should know the law says he does know. There is no doubt, however, that if the jury should say, or if you could say as a reasonable man, that the student did something he should not have done, or something which under the circumstances no competent student or no one in his situation would have done, and by virtue of his doing so the patient was injured, there is no doubt that the student would be liable and also the school which stands back of him. That is my impression. I may be wrong, but it is my judgment that the school which stands back of the student is responsible for his work, as a *student*, not as a practicing dentist, and if by virtue of his negligence, taking into consideration the surroundings, if he is guilty of negligence and the patient is injured by virtue of that negligence, not only is the student liable but the school that stands back of him and receives his tuition for the purpose of giving him the instruction that enables him to do that line of work, will also be liable.

I have forgotten the order of these questions, I believe. Permit me to say that I am glad, indeed, to answer any questions I can. Do not understand, however, that I put myself up as a legal encyclopedia, but I am willing to answer any questions I can. The questions that have sprung up are somewhat out of the line of the discussion I undertook, but I am glad to answer them.

As to anesthesia, that is to say, to what extent a dentist is justified in administering an anesthetic, and what anesthetic it is permissible for him to use, so far as I know, that has not been decided in the State of Illinois. I do not call to mind a single case involving a dentist where the subject has been decided, therefore I can answer only on general propositions of law. Taking into consideration the fact that dentistry now includes a course of study of three years, and a thorough course relative not only to anesthesia in general, but to the administration of it for the purpose of preparing the dentist so that he may administer it in his practice; taking into consideration the fact that dentists are now more thoroughly instructed on the subject of anesthesia in all its forms than doctors were ten years ago, I should say that if a dentist who has taken this instruction in anesthetics should administer an anesthetic, he would not be liable unless a doctor would be liable under the same state of facts. He certainly would not be liable under our laws for the mere act of administering, because there is no law prohibiting him doing it. He would not be liable if the patient were injured by the anesthetic alone and not by his negligence. Of course, a doctor or dentist may be guilty of negligence in various ways; he may administer the wrong anesthetic; he may administer an anesthetic which is impure; he may administer too little or too much; he may give an anesthetic to a patient whose condition is such that an ordinary examination would have shown him that the patient could not take the anesthetic. Under any of these conditions he would be liable to his patient for damages resulting therefrom, but the doctor would be liable also. I would answer the question with this bold proposition: Under the instruction dentists are now receiving they are not only as competent as a matter of fact, but as justified as a matter of law, in administering anesthetics as are doctors.

I do not know of any law in the State of Illinois restricting dentists relative to the medicines they may administer, and there is no doubt that the dentist is justified in law in giving any kind of treatment, whether it be the administration of internal medicines or performing some surgical operation which is recognized as necessary or essential to the treatment of the particular case which comes before him, provided, of course, the case he is treating is one which comes within his province. A dentist would not be justified in attempting to perform tracheotomy or some operation of that kind, because he works at the mouth. But work which is recognized as coming within your scope—suppose it be the administration of medicine for the cure of pulp cavities (the case stated by Dr. Brophy, to illustrate, in which certain medicines were administered) you certainly would be justified in administering any medicine, putting it in the tooth, applying it on the outside of the jaw or face, or in any other way you felt was essential for the proper treatment of that tooth or condition. You would be justified in doing it, and I think not only would you be justified, but as a matter of law you would be required to do so, and I do not think you could excuse yourself by saying, I did not think that was my duty. I think the patient has a right to look to you to perform all the things immediately essential to the work which comes within your jurisdiction.

Dr. Bentley: In case a dentist is called upon to treat an individual and finds he is a dead-beat, is he compelled by law to treat that patient until he has dismissed him or turned him over to some other competent man?

Mr. Brothers: That is indeed quite an important question. I do not call to mind any case bearing on that topic. That question has arisen in the medical profession. They do that in New York, and in Indiana and Ohio, where I have practiced. There they are practically compelled to keep the pauper patient until they can turn him over to some one else. While this question probably will never occur in your practice, yet if the condition should arise I think you would be held to the same accountability with the doctor. Let me make an illustration by way of the medical profession: Suppose a doctor is ministering to a patient and he discovers after a short time that this patient is a dead-beat and he will never be able to get any money from him. Can he drop him and pay no more attention to him? Would you suppose he could drop him without even telling him that he would not come back again and to get some one else? I think the bare statement of the proposition shows the injustice of such conduct. Suppose he is sick with a fever and the doctor goes away leaving him in the belief that he is coming back again. If the physician, discovering that the patient is a dead-beat, drops him at that point without notice, I think he would be liable to the patient as a matter of law for so doing if injury should result, even though the law of the State does not require him to continue treating the patient until some one takes his place. Suppose, however, the physician, on discovering that the patient is a dead-beat, should say to him, "I am not coming back again. Here is medicine that will last you a day or two. You are in need of further medical treatment, but I will not render it to you. Good day. Get some one else;" or something of the kind. In the absence of a law requiring the physician to do more, I do not believe that he should be held liable. Certainly there would be necessity for the patient to go further in his proof. If he could show a surgical operation and that the surgeon had left him in a condition out of which he alone could bring him (he having put him in that condition) then it might be the surgeon would be liable. But that is a peculiar case. Under ordinary conditions I do not believe the physician, in the absence of a law, would be required to continue doctoring a dead-beat until he could get some other physician to undertake the case.

A MEMBER: I witnessed an accident recently on Drexel Boulevard. The patient was lying on a bench, a doctor was called, he said she was in a critical condition and gave orders to get her into a carriage and have her taken to a hospital, and then he left. The patient sank under the conditions of the accident and was in a most critical state. Is there not some law to make that man liable for going off as he did and leaving the patient? Is not a physician in point of law liable for such an act of neglect?

Mr. BROTHERS: I know of no law requiring a physician, any more than another person, to take a case. I as a lawyer may be called upon by a client; the client may state his case to me and I may take it or refuse it as I choose. I am not talking now of the humanities of the case, but of the law. There was a case where a woman was severely injured and some temporary relief was almost indispensable. A physician was called and saw the condition; he did not minister to her but simply said, take her away. I do not believe there is any law, and I do not believe there should be a law actually requiring him to minister to her under the circumstances. I think he should be free to undertake it or not as he chooses. Of course, as a matter of humanity I think the physician should have done something for the temporary relief of the patient.

Dr. Geo. B. Perry: For the benefit of those who are not familiar with the legal aspect I would like to cite a case which was mentioned to me some time ago, by simply giving the details, that we may have Mr. Brothers' legal opinion upon it, if I am not imposing upon good nature.

A plate has been made and fitted satisfactorily. The dentist has sent numerous bills to the patient, who has refused to recognize them. The patient is seen on the street and told that there is something necessary to be done to the plate to put it in better condition. The patient returns to the office and when in the chair the plate is removed from the mouth, ostensibly to polish it but really to keep it until the bill is paid. Has the dentist a right to retain the plate? Is it his property?

Mr. Brothers: That is sharp practice and is a good way of collecting, but I may say relative to this proposition that you have no right whatever to hold those teeth for the payment of that bill, after they were once delivered. I assume there was an absolute delivery of the teeth in the first place and afterward by a mere ruse possession of the teeth was regained. This proposition would lie: They cannot be held for the original bill. They can be held, however, for whatever would be a reasonable charge for the polishing or anything that was actually and necessarily done after the teeth were returned to the dentist. A very important point, as a matter of law, occurred in the case as stated by Dr. Brophy—a point which was almost decisive of the case in favor of the dentist—that was, the patient came to the dentist's office, had the tooth treated, went away and *did not come back again*. The next day, or a day or two thereafter, inflammation set in. While it is not absolutely a proposition of law that it was the duty of the patient to go back, it amounts almost to a proposition of law that it was her duty to have gone to the dentist not only once but a sufficient number of times to have given him a reasonable opportunity to accomplish that which he undertook; and any jury (which is supposed to find the facts in the case) would say that it is not reasonable to expect him to do it by one treatment or one investigation. You always tell your patients, "if anything occurs, come back to-morrow or the day after. If you are troubled in any way come back that I may investigate." It is known that conditions may arise necessitating investigation, and as a matter of fact it may not be improbable that the conditions of which this patient complained were the outgrowth, not so much of the treatment, as of her failure to go back to the dentist and have the proper treatment administered the next day.

Dr. MORRILL: If a plate is fitted to the mouth and the patient refuses to pay, whose property is the plate ? If the plate is removed without touching the body or person, is the operator liable for assault and battery ?

Mr. BROTHERS : I do not see how it could be removed without touching the person, and I believe the person removing it would be liable for assault and battery. The plate is a part of the person. I think it would be so held as a matter of law; that is, on the supposition that the person refused to take it out of the mouth. I think the fact of refusing to give the teeth up is an election on the part of the patient to accept the work, even if he should say, I don't want them. He can refuse to give them back, and you must resort to civil action.

A MEMBER : You spoke about absolute delivery ?

Mr. BROTHERS : Those are terms we use in law. There are absolute deliveries and conditional deliveries. In an absolute delivery you give the teeth to the patient without any statement whatever; you say they are done and give them to the patient. That is just the same as if I buy a wagon and you turn it over to me. If, however, you say, these are the teeth, they may not fit you exactly, you may find they will rub you at some points, if so come back and I will fix them for you. That is only a conditional delivery, a right to wear them only until such a contingency arises. Anything that shows you expect the patient under certain conditions to return the teeth to you to work upon, would be a conditional delivery.

A MEMBER: I believe the question was if the patient comes in the office to have teeth fitted to the mouth and accepts them, and before he leaves the dentist asks him for the pay and he refuses but wants to take the teeth. Suppose I go to the store and choose a diamond ring, put it on my finger and want to march out of the store, have not they a right to arrest me?

MR. BROTHERS: They may under certain circumstances. We all recognize a distinction in work of this kind and ordinary articles of commerce. Teeth, I may say, as a matter of law, are not considered merchandise. A set of teeth is not considered wares and merchandise in law. If the dentist contracts to make a set of teeth the law says he has contracted not for the specific thing but really for services, and that his charges are more for the services than for the thing.

I thank you for the courtesy you have shown me. I hope the evening has not been unprofitable to you, and assure you that it has not been to me.

ILLINOIS STATE DENTAL SOCIETY.

Discussion on the annual address delivered by President R. N. Laurance, of Lincoln, Ill.:

DR. C. B. ROHLAND, of Alton (opening discussion): This address really does not need any commendation; it will talk for itself. Our worthy president has shown himself an adept at throwing bouquets. The ease and grace with which he can toss about the flowers of appreciation, and the instinctive discrimination with which he does it, too, shows like the able and courteous professional gentleman that he is, that he has more faith in gentle stimulants than in caustics. And I quite agree with him. The kind of inaugural which Dr. Laurance has given us will do quite as much good and will inspire us quite as much, even more so, than the jeremiad that is filled with pins and needles, and tobasco sauce. Judicious prodding with a sharp stick is sometimes timely and necessary; some people can only be reached in that way, but in the main keen-edged satire is a dangerous instrument to get into the habit of using. It is so easy to overshoot the mark, and it is so easy to make out of it a caustic that will destroy instead of simply stimulate, as is intended. And it is so easy to get into the habit of looking only on the seamy side of affairs, and in that way degenerate into nothing better or more useful than a snarling, faultfinding scold who never by any chance has a good word for anything or anybody. The one who can never see anything about him but greed and selfishness, venality and corruption, and who never by any chance sees anything good or genuine in anybody or anything, is, I say, neither a wise nor a good citizen. Suppose our heroes and ideals are filled with sawdust. What of it? They are usually not all sawdust, and so long as we do not know it they serve to give us pleasure and inspiration just the same, and he who wantonly mars or destroys that source of pleasure or inspiration just simply to gratify a propensity to scold or to show his superiority over his neighbors, is, I say, neither wise nor good; he is one of the kind that is fit for treasons, stratagems and spoils. He is one to beware of. I think the doctor, in narrating the good that has been done by the society, and in his graceful tributes to those who have contributed so largely to the glory and the achievements that we are all so justly proud of, has done well. It is much better to show our appreciation of them right here and now than to wait and carve it on their tombstones.

However, I do not quite share in the good doctor's feelings toward the sentiments expressed in the article alluded to on "Dental Organizations in the United States, their Failures and their Mistakes," from the pen of Dr. W. H. Truman. Now, as I interpret the article, I think the author freely admits the great educational value of dental societies in the past, and gives them full credit for the good that they have done and for their great influence on professional advancement. His main contention is that by reason of certain inherent defects of organization, and by reason of certain evils that have grown up within the societies which he enumerates, they have not lived up to their possibilities. I do not gather at all that Dr. Truman means to say that dental societies are or have been failures, but that could they have been organized on somewhat different lines, with a view to more permanent work, and could some of these evils that he speaks of have been eliminated, much more good could have been accomplished, and I am quite sure that this is not overdrawn.

The article, taking it altogether, seems to me to be rather a moderate presentment of certain evils that have grown up in a great many of our societies and that have done much to check their growth and usefulness, and it is well worthy careful perusal. It is true, that while our skirts as a society may not be entirely clear, very many of these criticisms, that the doctor urges in his article, do not apply with very much force to this society, and that is a source of pride and pleasure to me. We might consider, if our experiences were just limited to what we see and hear here, that his criticisms were very much overdrawn. But they are not overdrawn. While the offensive bossism, the dirty politics and scheming, the wire pulling, the side-tracking of carefully prepared and valuable papers, and the diversion of interest from scientific discussion for mere trivialities and personalities, and the boorish discourtesies that he alludes to, in the meetings towards participants in the proceedings, touching visitors and members alike, while these things happily have not been in very much evidence here, they have been in evidence enough elsewhere to fully warrant the caustic criticisms found in the article.

Now, these are some of the pleas that he makes there, if I recall them right (I do not wish to quote incorrectly). He makes an appeal for society organization on broader lines and lines of greater permanency, with a view to more systematic concentration and effort in certain particular directions; i. e., that society work should not be intermittent, but that the work taken up should be continuous, so that our societies will partake more of the character and permanency of a post-graduate college. That is one of the ideas that he is trying to bring out. Then he makes another plea for a stricter observance and enforcement, in our societies, of the amenities recognized in all clubs of well bred, self-respecting gentlemen. He deprecates caustic, brutal criticism. We can differ and we can express our differences, but we can do it in a gentlemanly way; and that is one of the things that he objects to and it is one of the things I am proud to say that we have found very little in evidence here but which we know has sometimes been too much in evidence elsewhere. Then he asks for more harmony between our dental societies and our dental educational institutions. He deprecates using the privileges of the floor to give vent to vague and ill-considered attacks upon teachers and colleges. Then he urges that our dental examining boards should be composed of broad-minded, educated, dignified, professional gentlemen, men of character and standing, and not mere pot house politicians or the creatures of pot house politicians.

He asks for a higher, nobler, professional attitude, that will lift us all above that commercial spirit that sees in each addition to our ranks only a business competitor, and treats him as such.

All these pleas, in which may be found the text of the article in question, certainly deserve from all a most hearty amen. Any movement, any effort that will tend to check the spirit of commercialism that seems to be a growing blight on true professional instincts, should meet with commendation.

Discussion on the report of Committee on Dental Art and Invention, H. J. Goslee, D. D. S., Chicago, Chairman:

Dr. W. A. Stevens, of Chicago (opening discussion): I do not like a Quaker meeting, and you know it. Now I want to state in relation to this instrument No. 43. I hold it up in my hand. I have a considerable criticism to make on this machine, and the inventor, if he is here, may feel like stepping on me. But I want to say that this and this and this part are about as useless as it is possible for anything to be. This and this are useful, they are an accommodation. I have one of them and have had it quite a while. This, for that matter, is certainly a very nice thing, and this sponge holder I use to hold my hot air syringe. This annealer is about as useless as it possibly can be for annealing gold. It is solid underneath and you only get a very small flame under it in one place. This one I warm my gutta-percha on, but I think it would be better if I put a piece of soapstone on it and warmed in through that.

This dam holder is a good germ catcher. Now we all know that these little pieces of soft rubber wear out in a very short time. If they had used hard rubber there might be some sense in that kind of a rubber dam holder. But so far as the dam holder is concerned, I like one that is made by the Detroit Mfg. Co. (I think.)

I just want to criticise those things as they come to me. If I step on some fellow's corns and make him kick it is all right.

Now, I think these saliva ejectors are a fine thing. The patient can sit and hold the napkin in his mouth and occupy his mind at the same time. I do not understand what this thing is for.

Dr. H. J. Goslee, of Chicago: I might state briefly that after the bite has been taken this is warmed and pressed into it and the two base plates are removed onto this instrument in a certain relation. I am not very familiar with it myself.

Dr. STEVENS: I think that most of us in taking a bite would find that there would not be one person in a thousand who would bite straight. Some say lay them back, some say tip them forward, some say press on their jaw, some say do something else. I can take a thousand bites and out of that thousand there will not be three of them that will be correct.

Dr. G. V. BLACK, presenting a dentist's manudynamometer (hand force measure). The intention of this instrument is the measurement of the force used in hand pressure in making gold, tin or amalgam fillings. It was intended primarily as an aid in teaching during school work, particularly in giving students quickly a correct idea of the force that should be used in packing fillings. Heretofore we have had no means of telling students how much pressure should be used, and practically each person has had to grope his way to correct usage with no other aid than that he may receive from his personal observation of results. With this instrument the student can weigh his muscular effort and quickly know the meaning of ten or fifteen pounds, or other specified amount of pressure, and become able to use a given pressure at will.

Since the instrument has been in use it has been found that there is great differences in the pressure used by different operators in making fillings, quite enough, indeed, to account for much of the personal equation talked of. Not only this, but a considerable number of persons are really incapable ot using sufficient force. This is readily found out by the use of the instrument. Also, it has already been learned that these persons can, by going into systematic training, soon correct their instrument grasps, and increase the effectiveness of the muscles of the hand until sufficient power has been developed. It appears, therefore, that the instrument has a valuable place among practitioners and in dental societies as well as in the dental school.

In the trials of the instrument in the clinic the capabilities of different practitioners varied from five pounds to thirty-five pounds with the pen grasp. The average of pressure used in filling teeth seemed to be about fifteen pounds.

Dr. J. N. CROUSE, of Chicago: I believe the most important exhibit was the instrument of Dr. Black's, and it will at once appeal to the common sense of every practitioner. I was surprised to see the difference in force which you obtain from holding your instrument in different positions. Operative dentistry will be improved when we once understand how much force is required to pack either amalgam or gold.

If this Committee on Art and Invention would study up and give us only the practical benefits to be derived from these various instruments, there would not be so large an exhibit, but it would be one of benefit to the practitioner who has not much money to throw away on useless appliances.

Dr. C. R. Taylor, of Streator: I would like to ask Dr. Black whether, in his experiments with these weighing machines, he has noted the difference in the effect of a thrust and of a blow of the same weight; say a thrust of ten pounds, whether its condensing effect is of the same importance as one of a sudden blow, as with a mallet, of ten pounds.

Dr. Black: I suppose the same number of pounds pressure would produce an equal result in condensing gold whether it is given by mallet or a thrust by hand. I think that will not make any difference in the result in condensing gold. If we were moving a heavy weight, or something of that kind, it might be very different in its results, but for simply condensing gold I think they would be the same. However, this is a matter that we know very little of as yet. There is so much in the physics of filling teeth that has not yet been approached in the way of study that we cannot even answer so simple a question as this at the present time, but we hope to in the near future.

Dr. C. R. Taylor: The reason I asked is that I think there is a great difference between a sudden blow with a mallet and pushing with the hand. For instance, it is said that a tallow candle can be shot through an inch board from a gun, but no amount of slow pressure could pass a candle through a board. You can take an instrument and hit it with a mallet and force it right through, and it would take a good deal more force to push it through the same substance. I think there is a difference in getting the same results with hand and mallet pressure with the same amount of force. I think if the experiments are ever worked out they will show that there is a difference in working with hand pressure and with mallet force.

Dr. A. W. Harlan, Chicago: In reference to these gold annealers, unless you use an electric annealer, they are very much improved by having a sheet of asbestos beneath the mica; the heat is then more uniform, and you will find, those of you who use the alcohol and gas annealers of that kind, that you will get much better results than with the mica alone. The mere fact of being able to see the flame does not cut any figure, and if you wish to have the heat more or less uniform all around, if you will have a tin can or something fitted around the lamp to keep the flame from blowing in all directions, you will get good results.

Dr. W. F. Green, of Evanston: I wish to supplement the remarks of Dr. Goslee on this disk carrier. So far as I know, this was made from original drawings of my own, but after I had this in my possession for some time a traveling supply man came around with a number and offered me one for sale. He said he got them from a man who manufactured them in the city, but I was never able to locate him. I never had any drawings made or anything done to protect it or make a patent of it. And I wish to say that I have used it for eight years to the exclusion of all other disk carriers, and I think I do an average business. The thing is as good to-day as it was the day I had it made. The wear is taken up by taking a pair of heavy pliers and pressing this clamp together. The two little pins on the side of the square pin are the ones I had there originally and the disk will crumple up before they will cut it. It is the simplest and most economical one we have to-day.

Dr. J. E. Hinkins, of Chicago: I just want to follow Dr. Stevens' criticisms a little farther. I cannot conceive how a man can present such a device as this. We are to-day supposed to be practicing dentistry and surgery from an antiseptic standpoint. I cannot see how it is possible to clean it. Now this other combination here that Dr. Stevens speaks of. Here is supposed to be your antiseptic dressing; and what is this supposed to be? It is an ideal bug shop. You have all the filth and waste of the different mouths accumulated there. Here is your antiseptic dressing and here is the bug shop.

Dr. E. H. Allen, of Freeport: Any one who has never used any of this luminous dam, I would recommend that they have some in their office, and on some dark day when it is necessary to treat the root canals of an upper or lower second molar from a distal cavity, just put on some of this luminous dam. I found it to be of great assistance, the light being reflected into the cavity from all directions by the metallic surface of the dam.

Dr. H. J. Goslee, of Chicago (closing discussion): I only want to say to Dr. Crouse that I gave this matter of making the exhibit about six weeks of my time and it was all that I felt I could devote to the work. At some subsequent time, however, I might go over this matter and pick out the good and bad and present my criticisms to the society.

Dr. H. J. Goslee: I wish to supplement my report of yesterday by calling special attention to the Goodwin formaldehyde sterilizer which is on exhibition in front of you and will be demonstrated by Mr. Leonard, who represents it, during the afternoon. Any of you who are interested in it (and all of us are interested in any kind of a sterilizer), can receive full instructions with regard to this special one from Mr. Leonard.

I want to call special attention also to a new set of pyorrhea instruments, designed by Dr. C. S. Case, of Chicago, that are manufactured now by Mason & Co., and have just been placed upon the market. They are most excellent instruments.

I also wish to call attention to a broach holder, designed by Dr. T. W. Brophy, of Chicago. In regard to this broach holder, it is the principle that I want to exhibit to you this afternoon, because the instrument itself is not at all complete. This one will appear as being a little too heavy and clumsy, perhaps, but the principle of holding the broach is the valuable improvement that I want to illustrate. Dr. Brophy will have them made of aluminum, a little shorter of handle, perhaps, so that they will be very much easier to manipulate and handle.

I wish to say further that because of the fact that a great many were not in attendance at the meeting yesterday, and in consequence did not see the exhibit of the Committee on Art and Invention, I have placed all of the articles in my room so that they can be seen by those of you who desire to see them and did not have the opportunity to do so yesterday, any time this afternoon after our session.

Discussion on paper, "A Gold Crown with Carved Solid Cusps," by Dr. J. E. Nyman, of Chicago:

Dr. C. B. Powell, of Jacksonville (opening discussion): The doctor's paper is something that I have been very much interested in. I have been working along that line for very many years, and supposed that everybody used that method. And, as far as opening the discussion is concerned, I am a little bit lame. I do not see anything in the paper that I could criticise; our methods are the same.

Dr. T. W. Brophy, of Chicago: I would like to call upon a young man who is extremely modest and somewhat inexperienced in this kind of work, but he may have something to say upon the subject. I refer to Dr. Taggart.

Dr. W. H. Taggart, of Chicago: I do not know of anything in particular to say upon this subject. I think, with all due credit to Dr. Nyman's ability, and he has been working for a few years now past on the lines of more artistic dentistry that he has written of to-day, that he is taking a backward step, not only in advocating the gold crown in that particular case, but in the fact that he has not given us anything new. All this has been hashed and rehashed for the last twenty years. Carved cusps were the first that came out and his process was one of the first ones that we used, because we had no die plates to swage our cusps in. Of course, while all this may be history to Dr. Nyman, at the same time it is true. Dr. Nyman refers to the fact that the porcelain crown cannot take the entire place of a gold crown; yet it comes so near it that the exception can hardly be noted. I have been making the porcelain crown for five years now and I have the first gold crown to put on in that length of time. Of course, if the bites are as short as Dr. Nyman finds them in his practice, he will have to put on the gold crowns, but I have found the bites sufficiently long to justify me in putting on the porcelain crown. It is much more artistic and the tissues take much more kindly to the porcelain to justify once in a long time the breakage of one. And when one does break you will find that there was an underlying principle that had been ignored. So I feel that the step in advance in the line of porcelain work justifies the effort to put them on in all cases where crowns can be placed. I do not know of anything more to say.

Dr. H. J. Goslee, of Chicago: Dr. Taggart has stated it quite correctly when he said that this method was our old primary method, the first that we had of making gold cusps for crowns. The matter presented by Dr. Nyman in his paper differs from the former principally in the detail. The detail, of course, is what makes the work artistic. I would differ with Dr. Taggart just a little, although I bow in deference to his skill and proficiency; yet there are some cases where I do not, in my opinion, believe it would be wise to put on a porcelain crown, and those are in cases of bridge work where you want all the strength you can possibly get in the root that is to act as an abutment for the bridge. If you sacrifice such a root clear down to the cervical line, no matter how accurately the cap fits, I do not believe you have the same amount of strength as you would if the root were left as long as possible and the telescope or shell crown used.

As far as the closeness of the bite is concerned, almost always a porcelain crown may be put in very nicely, because in that instance you would build up the entire tooth of porcelain, having the root cut very short to give you plenty of room.

There is a criticism that I would make with regard to the detail outlined by Dr. Nyman; in fact, one or two criticisms. First, he takes the little impression, after fitting the band to the root, with a small piece of modeling compound, securing the bite and impression at one and the same time. Now, if you do that and place it upon the articulator, when the modeling compound is removed you have not anything at all to prove your bite, nothing to govern you. If the set screw should become moved one way or the other you have lost your accuracy of occlusion; or if the spring of the bow part of the articulator should be pushed together a little too hard in making this modeling compound cusp, you would destroy your accuracy. This can be nicely overcome by taking an impression in plaster, including at least one tooth on either side of the crown. The contouring of a band can be very nicely done, beautifully done, as Dr. Nyman suggests, with solder and with a double band. But that can also be very nicely done with a single band, by having the circumference of one edge greater than that of the other; having the circumference of the occlusal edge greater than that which is to fit the cervix of the root. Another thing: The carving of cusps can be, to my mind, much better done in plaster than in modeling compound. I have experimented a great deal with both, and with everything, in fact, that could be used for that purpose, and you will find that you can trim hard plaster a great deal easier, with less liability of its flaking away, or changing form, than you can modeling compound.

Dr. E. K. **Blair**, of Waverly: Do you add anything to the plaster to make it set harder than ordinary?

Dr. **Goslee**: A little potassium sulphate, which I always use. A solid cusp can be made by filling in with solder at the same time that you unite the cusp with the band, and it can be done just as accurately as if you fill the cusp first. My practice has been, first to get a perfect approximation of the edges of the cusp and band, and then by securing the relation with either pliers or wire fill the cusp at the same time that I attach it to the band.

Dr. J. E. **Nyman**, of Chicago (closing discussion): I cannot agree with Dr. Taggart at all that my paper is a step backward, because, in spite of the peculiar practice he has in which he is seldom called upon to crown second and third molars with a very short bite, the rest of us have them, and I think all admit that gold crowns always will be with us; so anything that tends toward perfection in the construction of a gold crown can hardly be considered as a step backward. He says that when a porcelain crown gives way there is always some underlying principle which has been overlooked. You bet there is, and in nine cases out of ten the underlying principle overlooked is that the articulation is too short altogether; you have just a veneer of porcelain, which possesses no strength at all, instead of a bulk of it. He said that I have not given you anything new. Well, if he will find anywhere in all the literature that has been written so far on crowns any such method as I have presented to-day of obtaining that cusp in mouldine, etc., I will write an apology to the society. And it has been just that thing which has made me dread to carve a cusp, the difficulty there was about obtaining this Mellotte's metal counterdie to swage a cusp in, and a counterdie is the thing to swage a cusp in.

There is one trouble about filling cusps up at the same time that they are soldered to the band. If you do that you have got to use the same karat solder that you do in uniting the band to the cusp, and the solder is extremely apt to creep up along the inside of the band. In regard to making bands with a flare to them: If you do that, you have contact with the root only along the gingival edge. I like to have my band fit the root, the sides of which must be parallel, and then contour the crown out with solder. It makes a much stronger crown, and a crown you can grind at any point you may wish to without damaging it.

Discussion on paper, "A Few Thoughts on Prosthetic Dentistry," by W. W. Moorehead, of Aledo.

Dr. J. W. Cormany, of Mt. Carroll (opening discussion): I am very much pleased to have this subject brought before the society. I think this is the first time in a great many years that we have had any paper at all on prosthetic dentistry, so-called, i. e., what we have here. And as far as Dr. Moorehead has gone, I do not see how any one can improve upon the suggestions he has offered to us; they are every one correct, in my estimation. So far as the discussion of the paper proper is concerned, in my opinion it is almost an impossibility. The subject is before us and we can discuss the subject of prosthetic dentistry, and I will try and add to what Dr. Moorehead has already presented to you. I am led to do this because of one of the graduates of a Chicago college coming to me one time when I was in Chicago with a case of a lower denture with which he was having a great deal of trouble, and he said to me, "Here is a case that I can't make stick." Lower plates do not stick, anyhow. And he wanted to know if he could not extend the plate down under the back part of the jaw. He had just graduated from one of the Chicago colleges. Do you know what I told him? I told him what Dr. Stevens told us here a great many years ago, that in dressing up a plate, especially a lower one, take off all you think it will possibly bear and then take off a little more. I have carried out that rule and it works splendidly. You have got to take enough off of these plates so the patient can raise the tongue to the roof of the mouth, so that they can open the mouth and have the movement of the cheek without disturbing the plate.

In regard to taking the impression, I always put the patient on a common, ordinary chair and introduce the tray with the posterior part first, having the patient lean forward; then I stand behind them and let them rest their head against me, and putting a little sulphate of potassium in the plaster it will set in a few minutes. After the impression is taken I examine the roof of the mouth and then I remove from the impression a little of the plaster where the hard places are in the mouth. I run the cast and take the bite. In taking the bite I have the patient sit in the chair perfectly straight, then I ask him to throw his head back as far as he can and then to close the mouth slowly until his gums reach the wax, and then to bring the head forward. I get down on my knees in front of him and put one hand on his nose and the thumb of the other hand under his chin and close the mouth slowly until the lips touch. Then I pull the lower lip down and make a line at the edge of the upper lip; I also make a perpendicular line. Then I take this out, put it on my cast and put in on the articulator. If he has the lower teeth I take an impression of them in modeling compound. If he has a lower plate I take the plate and fit the teeth to it. This line that I have drawn here, I take a rule and measure one inch from this line up, then I make a straight line in the cast. Then I make a line running right down through the cast to give the center of the mouth, and that is my starting point. And if you will set your teeth so they will not come lower on the cast than one inch from your line, I guarantee that when the patient laughs, or anything of that kind, he will not show too much of the teeth. As far as the color of the teeth is concerned, whether you want them irregular or anything of that kind, that is something that you ought to know, of course. But one of the nicest things for you to carry out is to take an impression of the lower teeth and get a cast of them instead of pouring the plaster into the wax. Now I have told you a little bit about prosthetic dentistry, so far as principles are concerned, and I hope I have made myself clear. I am ready to answer any questions that you want to ask me, if I can. I am asking you to ask me questions because of my own experience when I first joined the society. I used to think, oh, if some man would say it, I would like to ask a question right there.

Dr. G. H. HENDERSON, of Springfield: I would like to ask your opinion of the relative value of different bases.

Dr. CORMANY: As far as that is concerned, my practice is in the country, and is limited to a rubber plate. If I want a gold plate or a continuous gum plate I have it done some place else, so I am not one to answer a question of that kind. Dr. Allen could answer that question for you. Of course, I can say the continuous gum plate is the best by far.

Dr. C. P. PRUYN, of Chicago: Do you always get a correct bite?

Dr. CORMANY: I very seldom fail. I do not remember of failing in years.

Dr. F. H. MCINTOSH, of Bloomington: Do you try in the denture in wax?

Dr. Cormany: No. If you do that you will find that it will fit all right in the wax and when you come to make up the plate you have made a mistake some place.

Dr. T. W. Pritchett, of White Hall: I believe you were challenging the young men for questions. You have not said anything about occlusion or articulation. Is there some necessity for that in the construction of artificial dentures? Will Dr. Cormany tell us something about occlusions? How he occludes these teeth—articulates them?

Dr. Cormany: I commence, if it is a full set, above and below (now recollect I told you in taking the bite you closed until the lips met, not until the chin and nose met); then when you get your casts on the articulator it may seem that they are apart about half a mile, so to speak, but when you come to articulate the teeth one with the other, you will find that the space between there must be filled up in some way, and, of course, you do not want this chin and nose to have a meeting. And there is the occlusion, if that is the way I understand your question.

Dr. Pritchett: Not quite, sir. It is the form of the contact of the occluding surfaces.

Dr. Cormany: I commence with the upper central incisors first and place them in position with the line corresponding to the length; then I take the two lower central incisors and put them in proper line and set up to meet the upper ones, but about one-sixteenth of an inch posterior to the upper ones. No teeth touch in the closure except the bicuspids and the molars, and between the central incisors of the upper and lower teeth there is at least one-sixteenth of an inch. Is that what you mean?

Dr. Pritchett: The idea is, what do you think of Bonwill's articulation as a theory and a method?

Dr. Cormany: I must confess I have not studied it very much.

Dr. Pritchett: I hope you will.

Dr. Cormany: All right, I will see to it.

Dr. G. D. Sitherwood, of Bloomington: I would like to ask your opinion of the value of the aluminum powder lining for rubber plates.

Dr. Cormany: None of those linings are satisfactory to me. I have tried them all and abandoned them some time ago.

Dr. A. O. Hunt, of Chicago: I hardly know just what points to discuss. To take the points brought out in the paper, as Dr. Cormany said, there is nothing special to discuss about it. Dr. Moorehead has presented his views on the subject very clearly, and I certainly should agree with him. If, however, the intention is, as Dr. Cormany suggests, that we should talk on prosthetic dentistry in its entirety, there is plenty of room for wasting time and discussing many points.

There was one thing which Dr. Cormany mentioned that struck me at the time. I think prosthetic dentistry, if we take the correct definition of the term as meaning the restoration of a lost part, is very nearly a lost art in dentistry to-day. We succeed in making very good substitutes, so far as their use is concerned, but not very good ones so far as the appearance goes. The failures are due to many different things, and I think one essential point is the getting of impressions. We want an impression that includes something more than the portion of the mouth that is ordinarily taken in getting an impression, if we expect in anywise to restore the features or to get a natural expression of the individual. For instance, if you will call to mind this fact, that when the cuspid teeth are extracted the corners of the mouth immediately droop, because the canine eminence is destroyed; the orbicularis oris muscles droop bodily. The canine eminence extends further up underneath the lip than the ordinary impression gives. In restoring the features of an individual it is necessary to in some way restore this canine eminence, because the cuspid itself, combined with its eminence, is the keynote to the expression of the face. All of the muscles of expression of the face enter the orbicularis oris muscle, so if this is out of position you cannot possibly restore the expression until you get it back nearly into its normal position. In taking an impression ordinarily with plaster of Paris, which is undoubtedly the best material to use, the pressure of the lip, the union of the mucous membrane of the gum portion and the lip with each other will press the plaster down in the region of the cuspid below the point at which a denture can be worn afterward. And, at the same time, if the denture can be extended far enough up to lift the orbicularis oris back into position, then we have at least a starting point for the restoration of the expression of the face. I do not care to go into detail, but I might mention here in connection with this a method. I never undertake to make a denture from a model made from the first impression, for the reason that I cannot get these parts of the mouth in the position that I desire them. So I first make a model from an impression as good as can be obtained from plaster of Paris, then afterward trim out over the region of the cuspids; or, in other words, trim out directly underneath the alæ of the nose on either side (this is the normal position of the cusp of the cuspid in all cases) and trim up on the model so that I can make an impression tray of modeling compound to fit this cast; or make it of gutta-percha; any of the materials that will be firm enough, so that you do not require a large amount of plaster. But the margins of this tray so made will carry the plaster up into all parts of the mouth where you desire to have the plate high. Notably there are four places in the upper jaw; over the regions of the cuspids and also over the tuberosities of the maxillary process. These are the four places where a denture can be carried to an extreme limit with good results, and for the purpose, not only in the anterior portion of lifting up the orbicularis oris muscle, but in the posterior portion of lifting up the buccinator muscles, and also utilizing the latter afterward for the retention of the plate. Now the question of whether or not a plate sticks in the mouth is not due to the suction, but is due to the grasp that the buccinator and the orbicularis oris muscles may be able to get upon a denture. You have all noticed this fact, that with people who have worn dentures for a long time, the mouth has changed and in talking with them you will see that the anterior portion of the plate is chopping up and down. This indicates that it is not held by suction in the mouth, but they learn to hold it up by pinching the buccinator muscles against the sides of the plate. If you desire to test the power of the buccinator muscle, lay your finger within the mouth and press the buccinator down upon it and endeavor to withdraw your finger you will see how much power there is in it. And finally, after a patient gets accustomed to using a plate, this is the manner in which they retain it; unconscious they are of the fact, but they learn to pinch the plate with the buccinator muscles, steadying it in that manner. If they are biting off anything with the anterior teeth they exert a pressure backward on the anterior teeth to force the plate into the buccinator muscles.

In regard to the lower denture, Dr. Cormany spoke of how to trim a lower denture. I think the fault here lies in the manner of getting an impression. There are a great many more muscles that interfere with a lower denture than with an upper, and these are principally the muscles underlying the tongue. I do not think sufficient care is taken to get the impression of these muscles, which is all important. You may make a denture, and after trimming it away you find that you have taken it away in places where it does not need to be removed, but by getting a proper impression of the mouth you may know exactly the action of those muscles. Usually I take an impression in wax first for the purpose of making a tray, cutting all the interior portion of the wax impression away and cutting pretty freely away in the lingual side of the impression all around. Now in placing the plaster in this tray, and afterward in the mouth, the patient should be instructed, while you are holding the tray down, to run the tongue out of the mouth; keep saying to them further, further, and they will shake their head, and you say further until with persistent effort sometimes it will run out to the end of your tray. When you have the full extension of the tongue and the impression of that action taken in the lingual margin of your denture, you will have very little trouble about a plate lifting, because there are no muscles on the outside of the lower jaw that can lift a plate out of position. By that means you can make a plate exactly to the lines of your impression. The difficulty will be, and is usually, that the tongue is not forced out of the mouth far enough; the attention of the patient is not kept long enough upon that point.

Dr. C. B. ROHLAND, of Alton: When you ask them to press the tongue out do you let go of the impression cup?

Dr. HUNT: No, sir; I keep that firm.

A MEMBER: Will you tell us how you get the expression; how you try in the teeth and the like of that?

Dr. HUNT: I might give you a few points. I read a paper before this society in regard to the relation of the teeth to the face a couple of years ago. That relation is a positive one; it is not a matter of guesswork, and while not desiring to go over all of that ground, I can state in a few words some points that are cardinal principles. In the first place, the length of the lower teeth is always the length of the lower lip in any mouth. The overbite of teeth is the length of the cusps of the bicuspids. The cusp of the upper cuspid is always in a direct line underneath the alæ of the nose; it does not matter what the arch of the mouth may be; the labial face of the tooth may be turned, but nevertheless the cusp is always in that position. Now these teeth must come into their normal position for the reason that they are guided there by a set of muscles that lie each side of them during their eruption. Other teeth, laterals, centrals, bicuspids, are moved out of position by them, but the cuspids will usually stand in their position. If it is a young mouth and the time has not been long enough for the complete eruption of the cuspid tooth, the cusp may point toward the lip, but if it is fully developed you will usually find it in the position that I have given you, almost invariably. In getting the expression of the mouth, the doctor spoke of making a line in taking your bite. Did you ever notice in many individuals that you see sitting with their faces at rest how many of them have the lips apart? It is a very common condition. As you go along the street, in the street car, in the railway car, if you will study the human family you will find that this is a very common condition, that when the face is at rest the lips are apart; i. e., the upper lip is lifted up from what we call a normal postion. In getting the articulation or the bite, this should not be disturbed, because if you change that in any manner you are going to change the expression of that individual, just as a photographer changes the expression. One of the first things he will say is, now close the lips easy. The picture is taken; when you see the result of it you notice there is something about it that does not look natural. The whole expression of the face lies in the lower part of it. You change the lips or any part of them in the slightest degree and the result is a change in the expression. Now all of these things should be considered, but before doing that it will require close observation of individuals whose natural teeth are in position; people that you see in your chair every day; notice the arrangement of the teeth, the position of the cuspids, the length of the lip when the face is at rest. And another point, when the face is at rest the teeth do not come in contact in any mouth. The usual arrangement of artificial teeth is that when the face is at rest the teeth are in contact and they get in the habit of biting their teeth. If you will sit right up straight in your places I will try to tell you the position of your own teeth in your mouths in relation to the lips. Let your faces be entirely at rest. You will notice that the cutting edges of the superior central incisors are just touching the inner edge of the lower lip; your teeth are not together. You have got many arrangements of teeth here in this audience, and unless there is some great abnormality I think you will find what I say is so. Now there is the length of the upper teeth in every case and always. If, however, it is a case where the anterior teeth are protruding, the only difference is that the cutting edges instead of touching the inner edge will touch the outer edge of the lower lip. Where the overbite is greater than it should be you will notice when the teeth are closed together that they are pushing the lower lip downward. In a person who has an extreme overbite there is a deep depression in the lower edge of the lip at this point. In all such cases the overbite is abnormal. If you find that, in cases where you are going to make a denture, it is best not to try to restore it, because you will have the face looking better not to do it. You see the lower lip, by the long action of the superior teeth on its edge, has been rolled downward and outward, making it shorter; still, when it is up in position the proper length will be restored. In the first wearing of the denture the lower teeth are very much more exposed than would look well, but in a very short time the lip comes to its place and into position, and the result is that you have a face of the proper length and a proper expression.

In regard to getting the expression in the region of the cuspid tooth, which is all important. A denture should be made as high as you think it can be worn, and a little higher, but do not make a sharp edge to it. Make the edge of your plate flat in that locality so that the lip will lie upon it; not that it will push the lip out, but that the orbicularis oris muscle will lie over it. In that way you compensate for the loss of the canine eminence which extended above that union of the mucous membrane portion of the lip and gum. In doing this you bring the muscle at once up to its position; and in so doing you change the position of every muscle of expression of the face.

In taking the "bite" is the time to reproduce all this condition of expression, as you want it in the wax itself, and then simply replace the wax with whatever tooth you desire to use. I would mention one thing, however, that I have always practiced. In the taking of an articulation for a full upper and lower denture, I make the trial plates as full, or a little fuller, than I expect to use them, making two flat surfaces that will slide over each other. I have them cold so that the patient can move them about just the same as though they had their teeth in the mouth. It is difficult to use any fixed way of saying to an individual to close his jaws and have them come together properly. You want to let them use these trial plates in the mouth for some little time, talk with them, so that these plates will in a way begin to feel more at home in the mouth. And after they speak a word, as the jaws close together, at the instant they cease speaking the jaws are in their proper relation to each other. Now if you can catch them in that position just as they complete a word, simply say, hold perfectly still, and make a mark on the wax so that you know afterward whenever they close their mouth, that it is in the proper position.

Now in regard to the lip. How are you going to know when the expression is natural? We have some faces in which the line or angle of the face is perpendicular with the base line; in others the face will form an acute angle, and in others an obtuse angle. To get the length of the lower teeth, if you will pass an instrument between the lips at right angles to whatever angle the face may be, you will get the proper length of the teeth in relation to the lips, and mark that on the wax.

Dr. Moorehead (closing discussion): The subject has been so thoroughly and ably discussed that I think I need say nothing more, except to thank you for your attention.

Discussion on paper, "A Simple Method of Treatment of Fracture of the Lower Jaw," by Dr. W. A. Johnston, of Peoria.

Dr. C. P. Pruyn, of Chicago (opening discussion): The essayist has given us a very lucid description of his method of reducing this fracture. He says there are special complications to consider, mechanical, moral and spiritual. As dentists, we do not usually call upon the use of the moral or the spiritual faculties in our work.

His method of reducing the fracture, and holding the parts in apposition, is very unique and simple, and shows us what may be done very easily and completely in certain cases. Fortunately in this case the teeth in the upper and lower jaws were in position.

The main point that he wishes us to consider, I think, is the point of moral obligation of the case. Did he do right or wrong in shielding the gentleman who first had the case for treatment? Remember, this accident occurred on Monday; on Wednesday Dr. Johnston was called to see the case. You will remember where the fracture occurred, almost at the symphisis. These parts might have been kept in apposition with very little outward marks of dislocation. And you will remember, also, this was a young physician, and this was really his first case, and it may have been that the congestion of the soft parts was sufficient to help hold the broken bones in comparative apposition. If the fracture had occurred at either side of the median line the parts might have been very easily drawn out of place. And I think if this case had been called up in court and expert witnesses gave testimony, there would have been as many experts on the one side as on the other, who would have testified that it was very easy to make a mistake with the fracture in that position. If it had been on either side the muscles would have drawn the parts out of place. He did the right thing, I think, by all odds. He might have done a mean thing; he might have said some mean words and considerable trouble might have resulted, but like a man he stood for his fellow practitioner, as we should all do. What good would it have done, either to the patient or physician, if he had made a big fuss about it, and said, the man who had you in the first place don't understand his business; if you wanted it done right you should have come to me? But he did not take that course; he took the course of a gentleman and stood up for his fellow and helped him out of trouble. This leads to the thought in general practice: Do we stand by our fellow practitioners as we should, or do we try to build ourselves up on the failures of our fellows? Too often I am afraid we do. And is it a right thing to do? We cannot always tell when a case is presented to us just what the appearance of the case was when it was presented to the man who first had it for treatment. Therefore, let us exercise this broad spirit of loyalty and charity that was exemplified in the case of Dr. Johnston.

Dr. G. H. **Henderson**, of Springfield: About three years ago one of the physicians of this city sent to me a man with a broken jaw. It was broken between the lower left cuspid and bicuspid, and both teeth had been removed. I was informed by the physician that the accident had happened ten weeks before, and that at that time there had been a fracture also at the ramus on the right side. The case had been bandaged up and the bandage had drawn the part of the jaw between the two fractures inward toward the tongue. The fracture on the right side when I saw it was healed. I took an impression of the parts, fitted them together and made a splint of vulcanite. The man was a poor man; he had been an habitual drinker for years; he had been discharged time and again by his employer on account of his drinking habit, and it was a job to get anything to work. But I made the splint and inserted it into the mouth; used no bandage whatever, and he held it in his mouth a very willing patient at this time. The articulation on the left side is now perfect, but the right is not on account of the jaw having pressed in. I did the best I could, splinting the parts so as to make the articulation as good as possible. Neither the physician nor the patient has heard any complaint from me, but that physician has since taken that splint and shown it around at the hospital, and he now says that he will never try to repair a fracture of the maxilla except by the assistance of a dentist.

Dr. E. F. Hazell, of Springfield: I did not wish to mention this matter. I was simply telling Dr. Gilmer about a case I had. The patient presented himself to me to have several loose teeth extracted. He had a bandage over his mouth. I supposed he had an abscess when he entered the office, but on examination I found that he had a double fracture of the inferior maxilla. As I recall it now, it was fractured between the central and lateral on the left side and between the two bicuspids on the left side. He had been for a week or ten days in that state; had not consulted a physician or anybody but his landlady, who had dressed the external wound. I took the case and tried to do the best I could with it, using some Angle fracture bands. I first wired the teeth together in the vicinity of the centrals to the cuspids with suture wire, then applied my fracture bands and drew the teeth up into articulation as best I could, and applied the occipito-mental bandage. I kept him in that condition for four weeks, and it was a long four weeks for both of us. He was very impatient to get to work; but at the end of that time I removed the bandages and let him go about his duties, with very good results indeed—far better than I expected to have.

Dr. T. W. Brophy, of Chicago: In the remarks made by the gentleman, and, in fact, in the paper presented by the essayist, it was stated that in cases of fracture of the jaw the teeth were found very loose. The history of these cases generally is that the patient applies to a dentist from one to two or three weeks after the injury for the purpose of having loose teeth extracted, and it too frequently occurs that dentists remove teeth which seem to be loose. The teeth in many instances are not loose, but they move together with the fragments of the bone and the patient naturally thinks that they are loose, an abscess probably having formed by that time. Mistakes are often made by dentists in removing teeth which seem to be loose, but are only moving with the fragments. To reduce a fracture of this character and adjust the fragments so that when they unite they will leave the teeth to occlude in the proper way, is often attended with considerable difficulty on account of the long delay which pretty generally occurs. I think it is safe to say that thirty-five or forty cases came into the clinic of the Chicago College of Dental Surgery this winter through the various hospitals that surround us, and we find that nearly all of them were neglected cases where suppuration had followed the injury, and to first get the parts into proper adaptation, and to secure a good occlusion of the teeth, and to hold the fragments in quiet contact until repair might take place, is often rather a difficult thing to do. The plan we have employed most successfully in most of these cases is to secure perfect adaptation or occlusion of the teeth by wiring the teeth of the upper jaw to the teeth of the lower jaw all around. If it be a single fracture this is easily accomplished; if a double fracture or a comminuted fracture or a compound fracture, we pursue the same plan, and then, having wired the teeth of the upper jaw to the teeth of the lower jaw and made plaster bandages, we put the patient in a very comfortable condition and position. He is relieved in a very little while of the discomfort of movement of the broken fragments. Then with antiseptic cleanliness we are almost certain to get a good result. If we are able to get the parts into proper relation and secure them, and can maintain a perfect occlusion of the teeth until nature has had a chance to effect the process of repair, we will surely have a perfect result, and there is no means, in my opinion, or no method or plan by which this may be more certainly secured than by the plan that I have named. Of course, there are many other plans that we employ, but this is the one that may always be relied upon when we have patients whose teeth are present; in cases of edentulous jaws we necessarily pursue some other plan. I wanted to particularly call attention to this looseness of the teeth that patients who have fractures of the jaw invariably complain of, and they seek the assistance of a dentist to relieve them of these loose teeth. I remember a case where the dentist removed the second and third molars from the short fragment in a case where the fracture occurred between the first and second molar, and he absolutely destroyed the possibility of getting a good occlusion of the teeth and a perfect adaptation of the fragments. It was a great misfortune to the patient, for in that case we had no other recourse than wiring the fragments together; whereas, if these teeth had been left alone a splint might have been adjusted and the fracture could have been much more easily treated.

Dr. C. R. TAYLOR, of Streator : The rule is never to extract, is it not?

Dr. BROPHY : Never. If a tooth is found on the floor it is our duty to cleanse it and replace it, if possible.

Dr. C. R. TAYLOR: What size wire do you use?

Dr. BROPHY: About 20 or 22 silver wire, beginning back pretty well. For instance, the second molar first, and then leaving the ends of the wire out; then beginning below and twisting the two together. This can be carried all the way around, and the teeth are fixed.

Dr. S. F. DUNCAN, of Joliet: If all the teeth are in the jaws, what provision do you make for feeding the patient?

Dr. BROPHY: Formerly the old surgeons thought it necessary to remove a tooth somewhere in order to feed the patient. A patient may always be fed by use of a rubber tube, carrying the tube back of the tuberosity of the upper jaw, and so it is never necessary to remove a tooth in order to feed the patient. The patient may live on liquid food long enough to enable nature to effect a union of the broken fragments. Of course, if we have a comminuted fracture and various pieces of bone that are loosened, sometimes those keep up trouble for awhile, but we may remove them after awhile. And it is rather remarkable, it is especially pleasing, to see how much nature will do for us, if it has a chance, to bring about a union. When the bone is badly comminuted, if held quiet in the manner described, it will unite again, and the patient will not suffer the loss of so much bone as they sometimes do when this precaution is not observed. I think the difficulty in most of these cases is that they do not receive the treatment at the proper time, which is largely due to the ignorance of the patient as to the true nature of the injury, and too frequently we find instead of having the parts placed in quiet contact and so retained, a bandage will be placed about the head, which is even worse than nothing. The bandage almost invariably forces the broken fragments out of position, and they do not come as nearly in contact as they would if they were left absolutely alone.

Dr. Thomas L. Gilmer, of Chicago: I have said so much on this subject that I feel almost ashamed to say anything more. But I do wish to speak a good word for Dr. Johnston, and I appreciate the fact that he has brought the subject before the society and that he has certainly treated the case very successfully. I think he could have done it perhaps more easily if he had left off the upper portion of the splint and simply cemented the lower part to the teeth. By this means the patient would have been allowed to open and close the mouth. I have often made splints of metal which fit over and are adapted to the occlusal and a part of the lingual and buccal surfaces of the teeth. Such a splint is cemented to the teeth. Such a splint permits the opening and closing of the jaws and leaves the patient in a much more comfortable condition than does an interdental. The method of Heath, which has been referred to by Dr. Brophy, was one that I thought belonged to me for a great many years, but I found out afterwards that it was Heath's method. Certainly in most cases there is no method that is so good as the wiring of the upper to the lower teeth. The occlusion you are assured of, and there is but one objection to the method, and that is the danger to the patient in cases of emesis. I would say be careful not to wire the teeth of a patient soon after an anesthetic or for a considerable period after he has taken solid food. After wiring a case I always leave a pair of cutting forceps with the nurse, or whoever is in charge, so that the wires may be cut in case of this sort of an accident. A little splint that I have used that could have been made just as easily as the one Dr. Johnston described, is what I term a posterior band splint, and in this case it would have been very effective. A little vulcanite splint is formed to the lingual surfaces of the teeth only, and through this splint is drilled holes so that wires may be passed through the splint and in between the teeth, wiring it solidly to the lingual surfaces of the teeth. In treating fractures by wiring the upper to the lower teeth, I would not, as a rule, wire all of the teeth, because a few only on each side of the jaw is, in my estimation, necessary; probably three on a side would be sufficient, and then instead of wiring the upper bicuspid we will say to the lower bicuspid, I would wire the upper bicuspid perhaps to the lower first molar so as to prevent lateral motion and to prevent a direct pull on the tooth on a line with its longest axis. Instead of silver wire I use soft iron or German silver wire. Either is very much stronger than silver wire, therefore not so likely to break in twisting the ends together. These wires, you know, are introduced from the lingual surface of the teeth by a pair of bent forceps and brought together on the buccal surface and twisted.

Dr. Johnston (closing discussion): I can assure Dr. Brophy that I did not pull out any teeth; it was the other fellow who thought the teeth ought to come out. The reason that I did not make a splint for one jaw only, was because I could not under the circumstances. I put the man up the first night simply to sleep over, as I was not absolutely sure that my temperance lecture was going to be as effective as it was. I do not think I would like to trust a fellow with a splint on his jaw if he was going out with the boys again. I have, however, made the interdental splint of vulcanite with the upper surface flat, and like that very much. The object of writing the paper was not for the benefit of Dr. Brophy or Dr. Gilmer or Dr. Pruyn, who could give people pointers before I was born, but for someone who would get a case of this kind and be frightened to death over it. I remember the first case I had I was scared stiff and I thought that my reputation depended on that one case. I laid awake nights over that thing, and when the fellow got well and did very nicely, I began to think that it was not so serious after all. I think that I have had twelve or thirteen cases, and at least seven of those have been sent me by other dentists, simply because they were afraid to tackle them. Now in a case that was as simple as this, there was no need of being afraid to tackle it. There are some cases that are enough to make anybody shaky, some very complicated cases where there is a multiple fracture; they are very difficult to treat properly, and such a case as that—well, a man does not want that for his first case. But in a simple case of this kind, I hope that possibly the splint that occurred to me on the spur of the moment might help someone who had yet to tackle his first case.

I thank you, gentlemen, for receiving the report so kindly.

Discussion on paper, "Calcification a Controlling Factor in the Treatment of Teeth," by Dr. Grafton Munroe, of Springfield.

Dr. G. V. Black (opening discussion): I did not care to open the discussion on this paper, but I do not like to see a paper like this go by the board. There are some very timely suggestions in the paper, some important ones, indeed. This period, between the time the tooth presents itself through the gum and becomes useful, and subject to caries, and the time of the completion of the root and the narrowing ot the apical foramen, is a very important time in the history of every tooth, particularly if it happens to be in the mouth of a child susceptible to decay. The results of caries are very much more serious at this time of life than later. In some respects we cannot follow the lines of treatment at this time of life that we can later. In the calcification of the teeth, however, it does seem that the hard tissue once laid down is practically complete, so far as laid down. The addition of lime salts made afterward is so slight as practically to cut no figure. Now as to the direct treatment of these teeth, so far as the teeth themselves are concerned, we might treat them as adult teeth in filling carious cavities, only that we have the child to deal with. We have the child, the sensations of a child and the child's inability of self-control. All of these we have to deal with, and for that reason we cannot treat these teeth as we would treat the teeth of an adult. Otherwise than this we might make metal fillings in these teeth the same as in the teeth of adults, and with the exception that the intense susceptibility of that period will search out every fault, we might make them just as successfully. I remember just after the war Dr. Peebles, of St. Louis, said, "The easiest cavity in which to make a successful filling is one cut in a tooth in a mouth in which there never has been decay." We have not there the susceptibility to caries to fight against that we have in these little children that come to us. The objection that such teeth are not yet fully calcified does not hold against making metallic fillings. Put a nathodynamometer between the teeth of these little fellows and see them bite down one hundred pounds on their molars, the roots of which we know are not fully formed, and we may see at once that we may use all the force that is required in making metallic fillings without injury to the tooth or to its membrane. But we are dealing with the child, and our dealings must be according to the conditions of that child. Often we will be compelled to use temporary measures where we would very much like to make permanent fillings, where our judgment would say, a first-class gold filling is the right thing in this case; but again, our judgment comes in and tells us that the conditions here are not suitable for making a first-class gold filling. Again, suppose the pulp is exposed, or very nearly exposed. Here the child has an advantage. There is a wide open pulp chamber, strangulation of the pulp is not to be feared; we can control the hyperemia that has been developed very much better in the child than in the adult; and even if inflammation has occurred, we can control that more certainly in the child than in the adult. On the other hand, to undertake to destroy the pulp and remove it and make a root filling, is to undertake a practical impossibility. In this case we must preserve the tooth's pulp alive or lose the tooth. The apical end of the root is not completed, it is perhaps funnel-shaped instead of being narrowed down to an apical foramen; a successful root filling cannot be made, and here we must be on our guard continually with our young patients. We must labor to save the pulp alive under these conditions, for upon the life of the pulp depends the future of the tooth. If we destroy the pulp or it dies upon our hands, it means the loss of the tooth. We cannot trust first molars in a child under twelve or thirteen years old, and they are very unsafe before the fifteenth year. I dread to undertake the removal of a pulp from one of these teeth before the fifteenth year. A long experience and observation of these teeth and the results that follow the removal of pulps, shows me that most of those teeth are lost, if not immediately, within ten or twelve years pretty certainly. I have seen very few molars from which the pulps were removed before the fifteenth year that have stood fifteen years afterward; very few. They generally abscess; if they do not abscess, the tissues of the teeth usually break down early; the enamel will peel off from the dentine, and the whole thing will go to pieces. This is one of the difficulties with teeth from which the pulps are removed early; or if removed late even, not very many years go by until the junction of enamel and dentine becomes enfeebled and it breaks away easily. Most of you perhaps have noticed that in the preparation of roots for crowns where the tooth has lost its vitality years before, it is easy to remove that enamel. A deterioration begins and continues after the pulp of a tooth has been removed, and there is a large difference when the tooth has before it sixty or seventy years of service, and when it has before it only twenty or thirty years. Now we may say that the calcification of the roots is not finished until the tenth to the thirteenth year in the first molars; about the same in the central incisors; and as we go on with the other teeth the ratio of time becomes smaller and smaller between the time of the presentation of the tooth and the time the roots are completed, so that we can follow somewhat more rapidly. But it is particularly with reference to the pulps of teeth and treatment of the pulps of teeth that we should be on our guard and study the conditions and calcification carefully.

Dr. J. W. CORMANY, of Mt. Carroll: Dr. Black, if a patient comes to us with a pulp already destroyed and they are eight or nine years old, what shall we do then, even if it is not abscessed?

Dr. BLACK: Extract the tooth at once; a horrible thing to do. Nothing would disfigure that face so much as the extraction of that first molar, and as much as I hate to lose one of those teeth, the best thing to do at that age is to extract it at once. That tooth should be removed before the second molar comes in.

Dr. J. M. BARCUS, of Carlinville: I would like to ask Dr. Black a question. Did I understand Dr. Black to say that there was no chance of doing mischief by putting in a gold filling in the first molar if the child would submit to it, that there is no chance of injuring the pulp?

Dr. BLACK: The use of reasonable force will do no injury whatever. When I say reasonable force, I have in mind the force usually used in making fillings. But we must take into consideration the condition of the child as to bearing pain, and all of that.

Dr. EDMUND NOYES, of Chicago: If I understand you, Dr.

Black, it is nearly the same thing as saying that it does not require any more force to make a gold filling in a tooth than ordinarily comes upon it in mastication.

Dr. Black: It does not require one-half or one-quarter the force that is liable to come upon it daily in use, and one is as liable to injure that tooth as the other.

Dr. F. H. McIntosh, of Bloomington: I must apologize for not being here to open the discussion on this paper. I have been hanging around here for some time to hear this paper read and I supposed it would be followed out in the same order that the motion of this society decided, and so I figured that it would come later in the session. I am very glad that I was not here, however, to open this discussion, because it was more ably discussed than I could expect to do.

There is one thing that I wish to say, and that is, that I was very much pleased with the practicability of the paper; I enjoyed that in reading it. And I have thought out on one or two of the same lines what Dr. Black has brought out, and that Dr. Noyes has spoken of, that I should not be so particular in the selection of a filling material as I should in the capping of sensitive dentine or the destruction of pulps, if it were necessary in a six year molar or any other tooth before the calcification has been completed.

There is one other thought, the careless extraction of deciduous teeth. I do believe that permanent injury has been caused to the germs of the second teeth by the careless or unthoughtful extraction of the deciduous teeth before the roots have been absorbed.

In regard to separation, I think we should be very careful. It seems to me it is the object of some operators to use the Perry separator on teeth to see how much force they could exert upon the appliance, either to show how much muscular ability they were possessed of, or to see how much the patient could endure. To get a separation between teeth that you can throw your hat through in a minute is, in my estimation, a very barbarous method of treatment.

I believe that teeth can be filled with gold, and successfully, before the calcification of the tooth has been completed.

I think he also mentioned in the paper about cutaneous diseases having some effect upon the germs of the second dentition.

I believe that is a mooted question and a disputed question. I should think if it would have effect upon the tooth germs it would also have effect upon the hair. The twofold results of inflammation, causing either the breaking down of the tissue or the hardening of the tissue, I think we should bear well in mind and be very careful in the use of our medicaments. As Dr. Black has said that he would remove the six year molar if the pulp were exposed, at any time before the tenth year, or if the pulp were destroyed, startles us. We have used every effort for the salvation of this particular tooth and have been successful in a number of cases I think; i. e., so far as I know, and that is another point; i. e., at the completion of an operation we do not know whether or not that operation is a successful operation. The capping of sensitive dentine; we do not know whether that pulp will stay alive or not. Any undue irritation of that tooth before calcification has been completed, we do not know but what that irritation will form pulp nodules and destroy the pulp of that tooth. So it seems to me that we are not prepared to say whether our operations are successful at the time of the completion of the operation; we have to wait a few years.

[TO BE CONTINUED.]

THE DENTAL REVIEW.

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ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

OUR EDITOR.

Our giant for hard work and inspiration, the editor of THE DENTAL REVIEW, is at this writing just about ready to turn his face homeward from Paris and the Dental Congress where he will have gathered many points of interest for the readers of this magazine. We hope for him and the coterie of dentists who will soon return from their foreign outing a pleasant voyage and an eager return to their labors. THE DENTAL REVIEW is spreading is roots out farther into the world each successive year and its great success is chiefly due to the conscientious care and genius of Dr. Harlan, whose acquaintance and fellowship throughout the dental world is probably as far-reaching as that of any other one man.

RECREATION AND RETROSPECT.

The season has again come round when recreation, relaxation, and the possibility of a little more variety of life is welcomed by the most of our profession. Needed rest is for some whose tendency is toward excess of work and worry; others need the spur which new scenes, new companions and activities give. Try to find out where your life is lacking—both professionally, socially and spiritually—so that you may supplement by honest study the conditions that are wanting and develop in yourself more nearly the normal man. There are always opportunities presented at this season to those who can open their eyes and minds. It may be a good time for an inventory. Are you progressive, a better operator, can you better control yourself and influence those about you ? Do you save any money for the rainy day ? How many new books, necessary appliances and facilities that ease the burden of practice have been added in the last year? Take time at least now to stop and think of some of the things that are or are not worth your while; the world may be the better for it henceforth and you will also have a balance and a reserve force on the right side to draw from in times of need.

DOMESTIC CORRESPONDENCE.

Letter From New York.

To the Editor of The Dental Review.

Dear Sir:—The three days session of the thirtieth annual convention of the New Jersey State Dental Society, which convened at Asbury Park, N. J., in the famous Auditorium by the Sea, July 18, 19 and 20, has passed into history. As successes are estimated from several standpoints, so this meeting should be reviewed.

The attendance was good, but only so-so, considering the ability of the Jersey State society during past years.

The program did not promise extraordinary things, in consequence of which nobody was disappointed, either as to essays or clinics. It was worth anyone's while to have followed the Junior Stellwagen through his lecture, for such it was, but it was excellent for all that. There were but two others who held the attention for any length of time; they were Dr. Underhill (an M. D.) and Dr. J. Allen Osmun. The clinics were quite good. The exhibits were more than that.

Thirdly, what contributed mostly to the success of the occasion—and which is always the "primæ"—was the management. Good men were at the helm and trimmed the sails as usual, and although this meeting was a success (as successes go) it lacked the vim, snap, eclat—whatever you might term it—that has characterized meetings at this place by the same society in the past.

The Auditorium is the same ideal meeting place for a gathering of the clans. Owing to the peculiar open character of the building the place is supposed to be a cool spot even when the thermometer records 100° or thereabouts anywhere else, but the temperature under that broad expanse of roof gets up to the unbearable point as well there as elsewhere; yet it is a treat to be by the ocean, and there are some cool things to be found; if one cannot locate them without help they can always get that and without the asking; the other fellow does that; there is a committee provided for that purpose.

The headquarters of the society was again at the Hotel Columbia. The management endeavored this year to accommodate the members and guests as best they could. There seemed to be fewer complaints on the score of accommodation than for several years past. Asbury Park has not to date been overcrowded with visitors. There seemed to be "lots" of room, especially did this evidence itself on Saturday, the day following the convention. The hotel dining room looked like the "first day" of the opening season.

A synopsis of the various sessions, with papers, clinics, exhibits, etc., will undoubtedly interest. The program was adhered to consistently, which kept the machine going quite harmoniously.

The papers were read in the small hall at one end of the Auditorium, which was so partitioned this year as to aid the acoustic properties of the place.

It is very difficult to hear, during the summer time when all windows are open, a speaker whose voice is not loud, unless the listener is quite close. This year that was perceptibly improved.

The program of essays and clinics, somewhat condensed, follows:

Essays.—"Facing Gold Crowns with Porcelain," George Evans, New York.

"Noncohesive Gold," H. B. Tileston, Louisville, Ky.

"The Combination of Oxyphosphate Cement with Gold and Amalgam Fillings," F. L. Fosheim, New York.

"The Eyes and Teeth—Some Concomitant Pathological Changes," Eugene Underhill, Philadelphia.

"Expansion and Contraction in Cements," W. V-B. Ames, Chicago.

"Dental Jurisprudence in its Relation to State Examining Boards—the Profession—the Laity," J. Allen Osmun, Newark, N. J.

"The Blood," Thomas C. Stellwagen, Jr., Philadelphia.

"A Quarter of a Century of Official Life," Chas. A. Meeker, Newark, N. J.

Clinics.—W. V-B. Ames, Chicago, Possibilities New Process Oxyphos. copper.

F. L. Fosheim, New York, Combination Oxyphosphate and Metal Fillings.

John I. Hart, New York, Different Stages Inserting Porcelain Inlays.

Joseph Head, Philadelphia, Porcelain Inlays.

F. C. Barlow, Jersey City, N. J., Adjustment Rubber Dam.

Cephar Whitney, Kingston, Island of Jamaica, Correct Occlusion.

W. A. Capon, Philadelphia, Porcelain Section with Platinum Wire Anchorage.

George Evans, New York City, Facing Gold Crowns with Porcelain.

W. L. Mason, Red Bank, N. J., Porcelain Detachable Teeth.

Robert H. Nones, Philadelphia, Something in Prosthetic Dentistry.

F. Lee Hollister, Wilkesbarre, Pa., Demonstration Angle's Orthodontia Methods.

F. A. Coney, Doylestown, Pa., Use of Electric Mallet, Foils No. 4 and No. 30 in Same Filling.

Wednesday, July 18, about 10 o'clock, the session was begun.

After the roll call and benediction, President Wm. E. Truex delivered his address, which welcomed the visitors, etc., and as usually the case suggested some changes in minor matter as concerns the working of the society.

A committee was appointed to take into consideration the recommendations, and after the reports of some of the standing committees, which does not as a rule interest even the rank and file of membership, the morning session adjourned until evening.

There were no afternoon exercises that day, which gave all in attendance an opportunity early to enjoy his sojourn.

The surf seemed the most attractive place and " many there were who splashed and dashéd in the broad Atlantic."

The evening session opened with a report on dental literature by Dr. W. G. Chase, of Philadelphia, which was a resumé of the salient literary productions from all sources which had been presented during the past year.

H. B. Tileston, D. D. S., of Louisville, Ky., spake as the sages of old did of " Noncohesive Cold," setting forth its advantages in *certain* cavities. He emphasized that it was easier and more rapid to fill a cavity with this material than by any other method, but that the finish of a contour, especially in compound cavities, should be done with cohesive foil.

The discussion on Dr. Tileston's paper was opened by Dr. C. S. Stockton, of Newark, who sustained all the essayist had said. Dr. Patterson, of Kansas City, Mo., in his remarks, made the statement that he found noncohesive gold placed on dentine over a pulp very nearly exposed by caries, acted as a nonconducting medium better than anything else he had ever used. The doctor was very positive in this statement. Those gentlemen who followed in discussion did not controvert such claims for noncohesive gold, except Dr. J. N. Crouse, who made bold enough to state that he failed to recognize that one character of gold could be less conductive than another identical material, except for the cohesive property. Dr. Crouse was applauded for this, which indicated that there were others who discredited Dr. Patterson's assertion. He said, too, that he believed that noncohesive gold was the best thing one could use at times, but that its use was very limited. Dr. Tileston closed the discussion by remarking that the majority of those who spoke to his paper seemed to misunderstand him. He wished it understood that noncohesive foil had a limited use, but in certain characters of cavities was the "par excellence" material, etc. The subject was passed.

The paper of F. L. Fosheim, D. D. S., of New York, on "Combination Fillings of Oxyphosphate Cement with Gold or Amalgam," was read. Absolutely nothing new was elucidated and after a few remarks by Drs. Osmun, Register and Goldsmith, the subject was passed.

A delegation from the newly organized society in New Jersey—the Southern Dental Association of the State of New Jersey—was present, and they were welcomed by a few apropos remarks by the chairman, and given an opportunity to make report, which was to the effect that it was felt that another society was required in the southern part of the State. The new society starts out very brilliantly, has good officers and executive, and will strive to be a credit to the State organization. The proceedings closed for the evening.

Continuation of exercises was on Thursday morning, July 19. The session began by Eugene Underhill, M. D., of Philadelphia, Pa., reading his paper on "The Eyes and Teeth—Some Concomitant Pathological Changes." His subject was most interesting and nicely treated. It consisted in the main of the diagnostic indications of diseases of the eyes concomitantly with troubles with dental organs, laying stress upon the importance of coöperative measures in obscure lesions. The paper was passed without discussion.

Dr. Underhill and Dr. Stellwagen were approached subsequently by several of those who were listeners to their papers who assured them of intense interest in their subjects, but that they felt unable to intelligently express themselves technically.

It is an ignominious shame that the *vast* majority of the best men of our profession (there are mighty few brighter ones outside the dental societies) are so woefully deficient on all scientific subjects.

Thomas C. Stellwagen, Jr., D. D. S., of Philadelphia, Pa., is a young man whom many expected to hear discourse a lengthy, dry paper on a disinteresting subject, "The Blood," in an uninteresting manner. But the elder Stellwagen, if he was present, must certainly have felt pride to hear the applause at the conclusion of his son's lengthy lecture—not from notes—and to have noted the great interest the whole assembly had in "the blood." Dr. Stellwagen, Jr., delivered his lecture with an earnestness and sincerity that magnetized and commanded attention. He spoke of the various corpuscles and described their many functions. He had large colored drawings on the wall which served well to follow him in his talk, and subsequently he showed under several microscopes the blood cells on the usual slides. Those who missed that part of the program did themselves an injustice. Dr. Stellwagen's paper was passed.

Next came a surprise — yet it was what one might have anticipated from Dr. J. N. Crouse. He had asked for the privilege of the floor and was promised a few minutes at the close of the morning session. He was there when the session opened and sat patiently until just before adjournment, when in a very nice way he opened his subject about dental protective litigations, and suits against association members in various States, etc., gradually leading up to the action of the half dozen or so prominent Jersey dentists who settled with the Crown Company so hastily for nominal sums. He said he had called them traitors, but stood ready to apologize if it could be shown that he was in the wrong; but if he was not, then he expected the guilty ones to apologize, not to him, but to the profession at large. When he had concluded a silence fell upon the multitude such as rarely occurs. They awaited the apology, "which never came"—openly. ALMOST all the men who paid the small fee of varying amounts got on his feet with an excuse, ending by saying that if he could have known what he now knows, he never would have paid the Tooth Crown Company for his release. Dr. Osmun defended his position well, and his position was most tenable. He had been sued by the Crown Company years ago, before the organization of the Dental Protective Association, and they had recovered from him. He had telegraphed Dr. Crouse this time asking what to do, and he also consulted his lawyer. Dr. Crouse being undecided what best to do in his case, and his lawyer urging him to settle, he did so, but if had known——, etc., he would not have done so. Dr. Stockton, who was first to speak, pleaded the necessity for maintaining his credit in the business world as his excuse, saying that at that time he was so financially embarrassed that he was obliged to settle, and that he could not afford to let it be known that he was sued. Dr. Sanger had the floor and showed fair cause for his action, showing that Dr. Crouse had approved of his course, and also said that checks from some of his colleagues were shown him. Drs. Meeker and Riley made very poor showings; they were sorry, etc., etc. Dr. Holbrook was defiant. He had no excuse to offer and did not see that any apology was due. It is said that the agent for the Tooth Crown Co. is a particular friend of one of these gentlemen who procured the agent the position with the Crown Co. (?) and who introduced him to the members of the Jersey society.

However all this may be, with the ending of the last explanation to Dr. Crouse ended the morning session of the society. Dr. Crouse evidently found nothing to apologize for but had accomplished what he was after. He had bearded the lion in his den and came away rejoicing. Council for the Protective Association—Mr. Offield—was present, but had nothing to say in open meeting. Evidently Dr. Crouse quite plumes himself on the outcome of the meeting, but it is not quite so certain that everything is his way despite a resolution of confidence in him which was duly passed. A large number of dentists in New Jersey have been sued and their cases are in the hands of the association lawyer. Recent developments, as concerns Dr. Stockton, his having been compelled to go into bankruptcy within the last two weeks, bear out his contention. It seemed to us at the time that Dr. Crouse owed an apology to Dr. Stockton rather than the reverse. It was not a pleasant thing to feel that such an one as Dr. Stockton should be compelled to lay bare his business troubles to shield his course in a matter in which his long honorable career should have been a sufficient answer. Apparently the Jersey men were " lame." They had been " kicked " some time ago, and were now willing to be " kicked some more."

If we remember correctly, it was intimated in Dr. Crouse's first article, in which these Jersey men were called "traitors, etc," that all these checks "had strings to them."

It was not in evidence at this meeting that *any* of them had strings, though there were hints of a "game of poker" and sundry "I have heard so's" and "it is reported." But no one doubts but that Drs. Stockton, Osmun and others did *actually* pay, and have *not* had the money or its equivalent returned.

It was most surprising to observe the quiet "Methodist class meeting" air that pervaded the audience. How meekly each "Brother" related his experience, *most* (not all) ending with "had I known what I know now I would not have done as I did." "After the horse was stolen," etc. Altogether it was "washing dirty linen," which seems to have been the fate of the New Jersey State Dental Society for the last few years.

Thursday afternoon was devoted entirely to the clinics.

Thursday evening session, July 19. J. Allen Osmun, D. D. S., of Newark, N. J., read his paper on "Dental Jurisprudence in Its Relation to State Examining Boards—the Profession—the Laity."

His opening remarks were, the reasons which prompted him to write was the apparent ineffective laws regulating practice in New Jersey, particularly the definition of "common school" education. He has worked for a whole year preparing his subject and procuring legal advice as to the correctness of his deductions. The doctor said in part, that the constitution of the United States sustains that any man who acquires an education in an institute etc., etc., shall receive protection.

He asks two questions. Has the State power to give privilege to practice? Has the State power to regulate privilege to practice? He also says that the constitutional rights of citizens are limited when they go to another State. Recognizing that there would be considerable antagonism, the doctor had several clauses in his paper which would allay the fears of some.

He recommended the continuation of the State Examining Board, but stated positively that as at present construed by high legal talent, the preliminary requirements are common school standard.

The paper showed careful preparation and elicited discussion, particularly from an ardent State Examiners Board member, Dr. G. Carleton Brown, who said the doctor's efforts were creditable, but he was surprised at Dr. Osmun's definition of preliminary requirements. Dr. Brown's standard is for similar preliminary requirements to that of New York State.

Dr. Osmun's paper seemed to be aiming at the State Board of Examiners and endeavoring to persuade them of their wrongdoing in leaving the National Board of Dental Examiners. In fact, Dr. Stockton finally recommended that the New Jersey State Board of Dental Examiners remain in the National Board of Dental Examiners. Dr. Brown insisted that the New Jersey Board was not wrong in retiring from the national association.

In closing the discussion, Dr. Osmun said that he had taken undue care to assure himself of the stand he took in reference to preliminary requirements, and that one of the highest authorities in the State, Justice Dixon, said the law now reads "common school."

"A Quarter of a Century of Official Life," by Charles A. Meeker, D. D. S.. of Newark, N. J., was an interesting bit of history, especially to the older New Jersey men. Dr. Meeker began the reading of his paper at 10:45 P. M., but he held his audience. He recounted the successes of the Jersey State Society meetings since his identification with the society, which has been for almost its entire life. He has been its secretary to date. When he had concluded reading, several men paid tribute to his faithfulness of purpose and spoke feelingly of the man and his labors. "A visitor" announced that he would like to record his thanks to Dr. Meeker and the New Jersey State Society for the many courtesies received through its faithful secretary.

Thus ended the second day's session.

The third day's session, Friday, July 20, was ushered in with reports of a few committees and then the sensation of the meeting to the members of the New Jersey State Society was at hand. Members went about, not with their heads high as of old, for New Jersey pride has had a fall; they are not able to say still that "we are different from thou;" "we pull together;" for strange as it may seem there have been rival factions in the Jersey Society for some time. The climax came this year in a struggle for supremacy—the election of officers. Of course, it was understood who would occupy the presidential chair, also a few other offices, such as F. Edsall Riley, president; W. L. Fish, vice president; Charles A. Meeker, secretary; Henry A. Hull, treasurer;

H. S. Sutphen, F. L. Hindle, Wm. Pruden, Oscar Adelberg, executive committee; A. W. Irwin, W. W. Hawke, J. L. Crater, W. Woolsey, G. M. Holden, membership committee.

But when it came to choosing a member of the examining board to be recommended to the Governor of the State of New Jersey, it was different, and here is where the suspense occurred.

Dr. E. M. Beesley, of Belvidere, and Dr. J. A. Osmun, of Newark, represented the rival factions. The former, the G. Carleton Brown faction, the latter the Chas. A. Meeker faction. There were 65 ballots cast, of which Dr. Beesley received 21 and Dr. Osmun received 44, and so that part of the story is told.

Dr. Sanger then offered a resolution to the effect that the New Jersey State Society request the New Jersey Board of Dental Examiners to withdraw their resignation and return to membership in the National Board of Dental Examiners.

The resolution passed.

Dr. Brown had one motion to make, that a committee of five be appointed, one from each county, to act in conjunction with the examining board to prosecute illegal practitioners.

It was explained that this would relieve the legislative committee of much labor. The motion was carried.

While the society session was closing for the year, the newly elected president, Dr. Riley, was requested by one of the exhibitors to "please come to the center of the Auditorium." Dr. Riley "thought somebody had some kick coming," and as he had been chairman of the exhibit committee during the session he hastened to learn the complaint. When he arrived at the place designated, one of a number of congregated exhibitors, after a pleasant little speech of presentation, handed Dr. Riley a morocco case in which was a double vest chain of gold and a handsome locket with a good sized diamond therein, a gift from the "boys." Dr. Riley has been prouder than a peacock ever since.

The doctor may have his shortcomings but "he is a jolly good fellow." Everybody was glad to know that he had been honored so unusually.

In the work of the clinics nothing new or startling was shown. Some failed to put in an appearance, notably Dr. Head, whose not coming was the cause of much annoyance to the chairman, Dr. Frank L. Hindle. Dr. Head was, in addition to his own work, to have shown the work of Dr. Cephar Whitney, of the Island of Jamaica, as Dr. Whitney was unable to attend and had notified the chairman in ample time. At the very last moment a telegram from Dr. Head was received saying he was about sailing for Europe and could not attend.

While the clinics were not new, and a detailed description here would only be a repetition of what has been often said before, it must be noted that these clinicians faithfully and laboriously gave their time and patiently described their methods.

To the credit of those in attendance at the meeting be it said that each clinician was surrounded all the time by a band of studious, inquiring men.

Especially did we note the earnestness with which Dr. Evans, of New York, patiently detailed his work. And on the opposite side of the room, in the hottest part of the building, with the July sun pouring its fiercest rays directly upon him, was Dr. W. A. Capon, of Philadelphia, in his shirt sleeves, with a hot blast gas furnace going, to show us the fine things he can do (and we ought to) in porcelain work.

Your own Dr. Ames was as smiling as ever as he showed the easy way in which he can manipulate "metalloid"—and so on—each clinician was thoroughly at home and worked as if in his own office or laboratory.

While, as before remarked, nothing new or startling was shown, the earnestness of both clinician and observer showed conclusively that these clinics are not to be despised.

The exhibits—well, it might make some societies envious if they were described in detail, and then I fear a full description might not be admitted without the payment of "so much per," and as this not a reading ad we must draw the line.

It was stated, and seemed to be true, that this was the most complete and largest exhibit ever shown by New Jersey. There was one exhibit, which as it did not advertise anyone's wares, may be alluded to. It was the handiwork of a Japanese graduate of the University of Maryland Dental Department, and for fineness of work, every detail well worked out, finish, every possible thing that one could desire in the esthetic, it certainly took the prize. It was a pleasure to examine this work. Speaking of exhibits, a certain dental journal, which poses as an exponent of the "higher" in dental matters, referring to the meeting of the *then* "American Dental Association" at Asbury Park some years ago, followed by the regular meeting of the New Jersey State Society, spoke of the meetings as being held "surrounded by a *fringe of trade*," sarcastically. At that time the exhibits were arranged *around* the large auditorium so as to leave a hollow square in the center for the meeting. It is not noticeable that this ironical reference has in the least deterred either the society or the exhibits. We noticed at this meeting that many prominent dentists from New York and Philadelphia spent as much if not more of their time around the exhibitors' tables as in the meeting.

This letter, Mr. Editor, seems to be altogether New Jersey, when it ought to be New York. There is "nothing doing" here, however. You were at Old Point Comfort and know what was done there. You came on there for a few days and then went to Europe with Dr. Brophy. That about tells the story. Our leading men are in Europe or just going, or else are in the mountains. New York dentists are usually more in evidence anywhere else than in New York during the summer. But wait until next fall. Won't all the societies open with a great flourish when these men return with this summer's "finds" to relate? Much good ought to come as the result of the meeting in Paris. Sorry we cannot join you there. Yours truly, "THE BOROUGHS."

MEMORANDA.

Dr. C. N. Johnson is spending his vacation in Ontario, Canada.

Dr. Winthrop Girling writes of a delightful bicycle trip through England en route to Paris.

Dr. Hugo Franz expects to make a tour through the principal cities of Germany during September and October.

Dr. I. Norman Broomell, of Philadelphia, sailed on July 24 for Paris to attend the International Dental Congress held at the Paris exposition.

Dr. Frank S. Buckley will visit London, Paris, Dresden and other points, en route to his new field of work in Constantinople, renewing some of his former European dental associations.

Drs. A. O. Hunt, H. W. Morgan and W. E. Walker were elected members of the law committee of the National Association of Dental Faculties at Old Point Comfort, Va.

DENTISTRY FOR SHEEP.

Mr. J. Mattick, a pastoralist of Hargraves, possesses a valuable American ram, which has found great difficulty in masticating its food owing to the loss of two front teeth. To get over this trouble Mr. Mattick called in the services of Mr. A. F. Stocks, a dentist who was passing through Hargraves on his way to Hill End. Mr. Stocks was highly successful in inserting two artificial teeth in place of the ones the ram had lost. No sooner was the operation completed than the ram demonstrated the success of the experiment by vigorously attacking some fodder which was supplied. This is probably one of the first, if not the first, experiment of the kind in the colony.—*From the Daily Telegraph, Sydney, Australia.*

DISLOCATION OF THE JAW IN EPILEPSY.

Charles J. Aldrich reports two cases of this unusual accident. The first was in the person of a woman aged twenty-one years, and the second in that of a man aged twenty-five years. In each case the first physician called failed to make a correct diagnosis. "From our knowledge of the action of the facial muscles during an epileptic paroxysm," the author says, "we would hardly expect a luxation of the jaw to occur as a complication."—*The Philadelphia Medical Journal, July 14, 1900.*

FIRST DISTRICT DENTAL SOCIETY.

To the Editor of The Dental Review:

The eighteenth annual meeting of the First District Dental Society of Illinois will be held at Galesburg, Ill., on Tuesday and Wednesday, September 25 and 26. Arthur G. Smith, *Secy.*

HIGHLY HONORED.—THE NETHERLANDS WILL RECOGNIZE VANDERBILT UNIVERSITY'S DENTAL DIPLOMA.

This morning Chancellor Kirkland received intelligence from Hon. Sanford Newell, Minister of the United States to the court of the Netherlands, that a royal order had decreed that persons holding the diploma of doctor of dental surgery from the Department of Dentistry of Vanderbilt University would be admitted to theoretical examinations in dentistry in the Netherlands. The University of Michigan, University of Pennsylvania, and Harvard, were the only other American institutions so honored.—*Nashville Banner, April 25, 1899.*

ITS FAME WIDESPREAD.—ROYAL DECREE IN THE NETHERLANDS RECOGNIZES VANDERBILT UNIVERSITY.

Minister Newell, at The Hague, reports that a royal order decrees that hereafter persons holding the diploma of doctor of dental surgery from the University of Pennsylvania, the College of Dentistry of the University of Michigan, or the Department of Dentistry of Vanderbilt University, of Nashville, Tenn., shall be admitted to the theoretical examinations in dentistry in the Netherlands.—*Nashville Daily American, April 25, 1899.*

WISCONSIN STATE DENTAL SOCIETY.

Following are the officers of the Wisconsin State Dental Society for the ensuing year: President, Dr. E. A. Gatterdam, La Crosse; First Vice-President, Dr. E. J. Hart, Madison; Second Vice President, Dr. Theckla Stein Reuter, Milwaukee; Secretary, Dr. W. H. Mueller, Madison; Treasurer, Dr. H. A. Palmer, Janesville.

Milwaukee was selected as the next place of meeting.

Yours truly,
W. H. MUELLER,
Secretary.

IN MEMORIAM.

DR. GEO. H. CUSHING.

The Odontographic Society of Chicago records with profound regret and deep sorrow the loss of one of its most distinguished members, a man whose name has been closely associated for more than a third of a century with the cause of dental progress.

Dr. Cushing was one of the pioneer practitioners of dentistry in the city of Chicago. He located here in 1857, where he remained actively engaged in the duties of his calling until failing health caused him to remove to California, where he spent the latter years of his life.

It would be impossible in this short memorial to record the many qualities and attributes which so endeared him to the hearts of his fellow workers.

He was, in its best and broadest sense, a professional man, ever ready to sacrifice his own interests for the advancement of that calling to which he devoted the best efforts of his life.

Conspicuous, indeed, among those who have labored to elevate and dignify our profession stands the name of Dr. Geo. H. Cushing. A man of high ideas and lofty motives, thoroughly imbued with true professional spirit, it seemed to be his one great ambition to raise the standing of dentistry. His earnestness and devotion to principle was manifest in all the relations which he sustained, and in every field of labor to which duty called him.

As a teacher he was universally loved and admired. In the various dental organizations to which he belonged he was a tireless worker, seeking every opportunity to advance their interests. Although he is with us no more there still remains the impress of his works and the inspiration of his bright example.

But while in the death of Dr. Cushing we feel the loss of one who did so much to point out the way of progress, yet our sense of personal loss is even greater, and we can pay no more fitting tribute to the memory of our departed brother than to say that so long as honor, integrity and noble manhood are to be admired, so long will his name remain treasured up in our hearts. We grieve that his life work is ended and yet rejoice that through so many years he was spared to us and to our profession.

Resolved, That this expression of our sentiment be inscribed upon our records and that a copy be transmitted to the bereaved family and to the dental journals for publication.

L. S. TENNEY,
A. H. PECK,
F. H. ZINN, } *Committee.*

DR. THEODORE MENGES.

WHEREAS, Almighty God, in His infinite wisdom, has removed from our midst Theodore Menges, B. S., A. M., D. D. S., we desire to express our appreciation of his worth; therefore, be it

Resolved, That we, the members of the Odontographic Society of Chicago, feel that we have lost a valued friend. In the demise of Dr. Theodore Menges the profession has lost one of its ablest leaders. He was a man of sterling qualities, of rare ability and of unquestioned honesty. His one ambition in life was to see his chosen profession raised to the highest possible level. "Higher dental education" was his watchword. As an organizer and leader he especially excelled. Had he not been called to an untimely grave we feel that his influence in the profession for all that is good would have been universally felt.

Resolved, That a copy of these resolutions be spread upon our records and that a copy be transmitted to his family and to the dental journals for publication.

(Signed) L. S. TENNEY,
A. H. PECK,
F. H. ZINN, } *Committee.*

The following resolutions were adopted by the Indiana State Board of Dental Examiners at a recent session:

WHEREAS, The late Dr. Theo. Menges, by untiring energy and devotion to the cause of dental education, has rendered inestimable services toward progressive dentistry and dental science; and,

WHEREAS, The dental profession of the world and dental educational institutions of the United States have suffered an irreparable loss by his untimely death, and the Northwestern University Dental School, its teachers, and numerous graduates the loss of a faithful friend and counselor; therefore, be it

Resolved, That this board express its sympathy to his bereaved wife, and its regrets to the Northwestern University Dental School and its teachers and its graduates for the loss sustained in the death of their Napoleon of dental education; be it further

Resolved, That copies of these resolutions be sent to his bereaved wife, the Northwestern University Dental School, the *Indiana Dental Journal*, the *Dental Digest* and The Dental Review.

M. A. Mason, D. D. S.,
Secretary.

THE

DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

IMPROVEMENTS IN OPERATIVE DENTISTRY DURING RECENT YEARS AND THE BETTERMENTS TO BE EXPECTED IN THE FUTURE.*

BY EDMUND NOYES, D. D. S., CHICAGO, ILL.

A well-known practitioner of twenty-five or thirty years' experience said recently in conversation: "There have been no improvements in operative dentistry in the past thirty years. Just as good fillings were made thirty years ago as are made now."

It is probable that a good many of the old practitioners have a general notion to the same purport, having made no important changes in their own methods of operating, and regarding what they would call the present era of operative dentistry as beginning at the time when cohesive gold, the mallet and the rubber dam had come into general and successful use. By that time a great many men, possibly as large a proportion as at present, made fillings with as good adaptation to walls and margins, as great solidity and as perfect finish and contour as are made at present.

Recent improvements do not relate chiefly to these particulars, but to a better knowledge of the circumstances upon which the success and permanence of fillings depend. Until recently it has been the almost universal custom (andI believe a vast majority of operators still follow it) to cut proximal cavities so as to remove decay and obtain sound borders of sufficiently strong enamel, cutting to the occlusal to make compound fillings only when unavoidable, and, in general, making all fillings as *small* as fulfillment of those two requirements would permit.

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*Read before the Illinois State Dental Society.

Such fillings are successful if well done in the cases where immunity from caries has already arrived, or comes immediately after the first series of operations is completed, but in all other cases, and they are very numerous, there follows a discouraging number of secondary decays, occurring most frequently at the bucco- and linguo-gingival margins of the fillings, till patient and operator become discouraged and the teeth are filled, once more, with amalgam, "because they are such poor teeth that gold will not stay in them." The amalgam fillings give a short respite, and then come the inevitable crowns, which are a confession that operative dentistry has been a failure so far as the preservation of the crowns of those teeth is concerned.

The recent improvements to which I would direct your special attention strengthen the two fatally weak points in the history of failure just related. The first is the forming of cavities and seating of fillings in such a manner as to reduce as much as possible the liability of secondary decay, and, second, the use of amalgams of so much better quality as to give promise of permanent preservation of the teeth in the cases where amalgam must be used.

The first may be stated in the form of a proposition or doctrine, as "The extension for prevention," or the cutting away of sufficient enamel and dentine, whether decayed or sound, to make the fillings cover the area of liability to decay and prevent splitting away of any portions of enamel borders, and the seating of them in such manner that they be not dislodged by the greatest force of mastication that can come upon them.

I believe that a very few men have fulfilled these requirements in a fair degree during the whole of the modern period of operative dentistry, and the relatively greater durability of their work and their success in preserving through life the teeth of those continuously in their care, have been the rewards for their unusual skill and good judgment.

However this may be, the subject was first presented to the whole profession in a systematic and orderly way, and the proper operations described in detail by Dr. G. V. Black in a series of articles in the *Cosmos* in the year 1891. These methods of operating have since been set forth by Dr. C. N. Johnson in his articles on filling teeth in the same journal, and have been urged upon the profession and illustrated by prepared cavities in natural teeth shown on many occasions to dental societies by Dr. E. K. Wedelstaedt, of St. Paul. They have also been systematically taught in the three dental schools of Chicago, in the University of Minnesota Dental Department, during the past winter at least in Milwaukee, and to some extent elsewhere. As a result of these teachings three or four hundred young graduates have each year been scattered over the country to practice these improved methods. It is time, therefore, for the older practitioners to wake up and realize the necessity to keep step with the young men if they wish to retain their places near the head of the procession. I wish to say emphatically, however, in this connection, that these procedures are not for careless operators.

Unless gold fillings are made better than a very large proportion of those made in the United States they will fail in a few years in mouths disposed to caries, and in most cases even in mouths immune to new beginnings. If a filling is foredoomed to failure by its imperfection it is better for both patient and operator that it be a small one rather than a large one.

The ideal mission of operative dentistry is the preservation of the natural teeth through life, in comfortable and effective service. Crown and bridge work, which has received so large a share of attention from the profession in recent years, and prosthetic dentistry, furnish the more or less unsatisfactory substitutes made necessary by the neglect of patients or failure of operators. If this mission is to be accomplished the members of our profession must not shrink from undertaking it. The circumstances and operations which may contribute to it must be studied and understood, both in general and for the particular cases that present themselves. Only a few of these can be mentioned and that briefly. The patients must be under the care of dentists from childhood and watched closely enough to make operations as soon as they become necessary. Temporary fillings may be the only ones practicable for very young patients, but it should be understood that the necessity for them relates to the endurance and self-control of the patients and not the physical or vital characteristics of the enamel and dentine into which the fillings are to be placed. Permanent fillings should be made as soon as it is practicable to make them large enough to cover the surfaces specially liable to decay and to do the work with the utmost thoroughness and perfection without overtaxing the endurance, or sometimes the willingness, of the patients. Great care should be taken to restore the forms of the teeth so as to protect the gums from injury, that they may fill the interproximate spaces to the contact points as late in life as possible. The teeth should be kept free from deposits of tartar for the same reason, and patients should themselves maintain the most scrupulous cleanliness. This last is about the only means we have at present by which immunity from the beginnings of caries can be procured or hastened. Later in life the preservation of the teeth will depend more upon watchfulness and skill in keeping off calcareous deposits and in the prevention and treatment of those diseases of the peridental membrane having their origin at or near the gum margins. This very important part of operative dentistry I will not discuss.

The improvements in amalgam alloys and in the method of mixing them and inserting the fillings are too recent to know fully the practical results that will follow, but they will surely be important.

One great danger in this connection is that the use of amalgam will be unduly increased.

An enormous number of amalgam fillings have been made in the past where gold ones ought to have been done, and notwithstanding the improvements in the past few years it would be very erroneous to suppose that amalgam has become "as good as gold" for filling teeth. It is still liable to flow, its edge is not so strong or tough as gold and it is to some extent an unstable and uncertain material. Continued testing seems to show that some of the amalgams expand slightly during many months after insertion. Others have a double movement, contracting first and then expanding. During the past thirty or forty years all amalgams, with so few exceptions as scarcely to need mention, shrank enough to cause their failure in all cases where there was much susceptibility to caries.

Nevertheless, it has been common to hear men say that in susceptible mouths amalgam fillings last longer than gold ones. When this is the fact it is explained partly by the greater average size of the amalgam fillings, covering more of the "area of liability," and partly, I fear, by the fact that very many operators make gold fillings that are even more imperfect at some important point than the shrinking amalgam ones. In my own practice and that of many others I believe the cases have been very few in which gold fillings have not proved more durable than amalgam ones under similar circumstances.

It is lamentable that so large a proportion of gold fillings should be so poorly done.

Everyone who has been long in practice has been obliged to remove large numbers of them which were so poorly adapted to walls and margins as to insure their failure in susceptible mouths; so imperfectly consolidated as to make close adaptation impossible, because subsequent force, either in completing the operation or by mastication afterward, had moved or condensed portions of gold previously placed; or in other cases the seating or anchorage has been so bad, or the gold so imperfectly adapted and condensed in the anchorage, that we have been saved the trouble of removing them, the force of mastication, the toothpick or the floss silk having done that for us.

The prevalence of this low grade of operating was illustrated many years ago by the assertion, made by the men who promulgated the theories then called "The new departure," that all cohesive gold fillings leaked. This statement was quickly shown to be erroneous by the production and testing of many that did not leak, but would they have supposed leakage universal if the gold fillings coming under their observation had not been generally imperfect? Is the average excellence of the gold operations throughout the United States any better now than it was then? I hope that it is, but feel some doubt about it.

There is no sufficient excuse for these numerous slipshod operators, for the physical requirements for a good gold filling are as positive and definite and can be as certainly accomplished by patience and skill as any other mechanical operations that must be done by hand.

The principal reason for such a low standard of operating is the inadequate teaching of students, for I judge it is still true for the majority of them, that they are *instructed* from the lecture platform and are allowed to *practice* in the infirmaries just as they please and without any instruction worthy the name. Emphatic exception to this should be made in case of a very few schools. The next reason in importance and prevalence is the supposed necessity to make operations too quickly or cheaply, which leads to neglect of any extension for prevention, the careless preparation of cavities, and the imperfect adaptation and consolidation of gold, chiefly because of using too little force, carelessly applied, and especially because of using plugger points so large as to make imperfect and unequal consolidation unavoidable. Such a low standard of operating as widely prevails is working vast mischief to the public and the profession. The former are too often disappointed in their hopes for the preservation of their natural teeth, at least of the crowns of them, and a large proportion of the profession grow despairing in respect to the accomplishment of that which they ought to undertake with confidence and with an experience of comparatively few complete or serious failures.

Another operation that is too often very imperfectly accomplished is the filling of the roots of teeth, especially of upper molars and bicuspids. In this case also the supposed necessity for rapid and cheap operating is largely responsible, together with the fact that several years of respite from trouble can usually be counted upon even after a very imperfect operation. Added to this is the fact that a considerable number of molar and bicuspid roots are found which the best of us cannot cleanse and fill well enough to prevent the development of abscesses *some time* (usually after a good many years). These can be made to cover and excuse the cases which could have been well done by the expenditure of more time and skill. The principal sources of failure are three. In the first place the pulp tissue may not be entirely removed. Portions of it sometimes cling tenaciously to the walls of canals and require to be scraped off by the cleansers of the Donaldson and similar forms, and it must not be forgotten that the canals are not always, nor often, cylindrical. In the second place the canals are sometimes left unfilled. Judging by the appearance when we open them for the cure of subsequent trouble there must be many instances in which men have supposed they filled canals full when in fact there was very little of the filling material in them. The third cause of failure is the shrinking of the material after it is in there. I do not know whether any better material has yet been found than gutta-percha in some of its combinations, but judge the large majority of the profession believe it the best material now in use. I do not believe it possible by any method, at least not any that is generally known, to make root fillings in small canals mechanically perfect and impervious in the same sense that a good gold filling is perfect; that is, they cannot be made certainly and always adapted closely enough to the walls and solid enough in their substance to prevent absorption of some fluid by the mass or leakage along the walls. Ideal perfection being out of the question, our object should be the nearest attainable approach to it. This is to be accomplished by such enlargement and smoothing of the canal as may be practicable, removing all traces of soft tissue in the process, such drying and treatment as will cause the dissolved gutta-percha to stick to the walls of the canals, the patient manipulation of it till some portion has been carried to the apex, and after that the use of heat to as great extent, and the solvent to as small extent as possible, for procurement of the necessary plasticity in completing the filling. Of course the smaller these canals are the less likely they are to cause trouble if only partly filled or left unfilled, and it should be our object to leave the fewest possible number beyond the reach of our ability.

The probabilities of future trouble may be made very small, indeed, but to do so sometimes requires great patience, some skill, and *hours* of time; and to men who feel obliged to charge very small fees, and who at the same time insist upon earning money rapidly, success with these smaller canals is impossible. The usefulness of artificial crowns after natural ones have been destroyed by caries greatly increases the duty to preserve the roots of teeth in health by every means in our power.

If this paper has put a low estimate upon the average operative skill and knowledge of the members of our profession, it has been done in no censorious spirit. The attainment of ideal perfection in any line of human effort is beyond the reach of the best of us, and the average performance is always very far below it. If progress is to be made faults and mistakes must be pointed out and the way to a better performance indicated.

In conclusion, I entreat you to give your best thoughts, your utmost patience and highest skill to that most important of professional duties, the preservation of the natural teeth.

EMPHASIZING SOME THINGS IN OPERATIVE PROCEDURE.*

BY D. M. CATTELL, D. D. S., CHICAGO, ILL.

Previous to the introduction of rubber dam as a means to prevent moisture from interfering with many operative procedures, the work of the dentist was often laborious and very unsatisfactory in certain procedures. The mind of the general operator was chaotic and the meaning of the word system was very vague. To my mind the advent of rubber dam into the profession was the *first* great step toward advancement after the date of the birth of the profession, delivered from the empirical conditions existing previous to the time when Dr. Chapin A. Harris and his colaborers were called to perform the office of midwifery.

The next important step was the discovery or recognition of the cohesive properties of gold, which allowed the full restoration of tooth forms—aided by the help of the mallet. Following next was the introduction of the dental engine that has done such wonders as a helper that a whole chapter could be written of its boon as a labor-saving factor.

With these three prolific breeders operators sought to improve their stock of experience by cross breeding and careful training in handicraft. Many races were run over the undulating course of general practice. At times interest would center in one promising procedure—the rider excited with the thought of success—when suddenly a new favorite would enter the field and hold the attention of the interested.

And so the race for advancement continued. Many improvements of more or less value were promulgated. Then there seems to have been a rest from extra effort until the year of the World's Columbian Dental Congress, at which time there was a great awakening. Men everywhere seemed to try to outdo their fellows. Many theories, many facts, many discoveries, many appliances and many ways and means were given a hearing and a trial.

From the babel of voices, the chaos of methods, and multiplicity of new improvements, there came a sound from out our midst—*a story that would not down*, a proposition that carried with it force, an expression that all teachers of advanced thought have made a watchword for those who would learn—"Extension for prevention," first used in Dr. Black's papers in the *Cosmos* in

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* Read before the Illinois State Dental Society.

1891, has become a fact, a sine qua non in the knowledge of ways and means in the effort to stop the ravages of caries of the teeth.

In May, 1893, at the Illinois State Dental Society, there was read a paper entitled "Anchorage of Proximate Fillings in the Bicuspids and Molars," by Dr. G. V. Black, which contained the first proposition of importance in purely operative procedures that had been thrown at us for several years. In that paper *some* points were dwelt upon with a masterly hand. The first of importance was, as Dr. J. N. Crouse has recently so aptly put it, "that it is wise practice to protect the danger points by extension of the cavity where decay is likely to recur beyond lines continually influenced by uncleanliness."

The second point in the paper was the proper size and shaping of the seat of the filling on the plane of resistance, so that the force of mastication coming upon the filling would not tend to dislodge it. This plane of resistance or seat of the filling should be at right angles to the force of mastication. The third point, that in the extension of the cavity to prevent future decay in proximal cavities the occlusal anchorage is weakened, the buccal and lingual walls being cut away occlusally to lines of straight and easy access. Hence, the necessity of cutting an "occlusal step" for the purpose of greater anchorage. Therefore, if the gingival wall of the cavity proper and the pulpal wall of the step are on proper planes, resistance against the "crushing strain" is provided for. While if the proper size and retaining form is given to the step portion of the cavity the "tipping strain" is guarded. That was a wonderful paper, so full of hints and suggestions—the first of a series by the same author on lines of greatly advanced practice in operative procedures—that I bespeak for it a careful re-reading. It was published in THE DENTAL REVIEW, of June, 1893.

These thoughts have been sown among us and have taken root and stirred us up to better effort and more satisfactory experience. In due time proximal cavities in incisors and cuspids, involving the incisal angles, were handled vigorously. What is known as the "incisal step" has taken the place of the former and weaker anchorage of a pit or two in the incisal region of the cavity.

In these cavities the extension, resistance and anchorage principles lie parallel with those of the bicuspids and molars.

One other point in cavity building has been gaining ground slowly but surely. It has been called the "convenience form," or the cutting away of tooth structure until we get an outline to the cavity that makes it easy of access. Indeed, cavities should be so constructed that all the walls are easily approached. All honor to the older operators who strove so hard to conserve tooth structure, retain frail walls and construct peculiarly shaped pluggers, that these cavities might be filled with some degree of perfectness. But their labor was hard and their results were too often failures, even with the better grade of operators. *Now* we seek to prepare cavities easy of access with all points conveniently reached, so that instead of wasting our energy in awkward positions in reaching difficult points, it may be given more entirely to *manipulation of the filling material* rather than finding in the end that our work was a failure, and soon being called upon to reshape some of the walls that we had hoped to retain by conservatism, but are lost during recurring decay, when had they been cut away as *convenience* would indicate, the better placed filling would still be doing service.

During the process of cutting away the enamel to the cavity outline or margin, there had seemed to be *soft* portions and *hard* portions of structure. So in the working of our best woods, if we cut parallel to the grain, or nearly so, the wood seems soft and cuts easily, but if the direction of the cutting instrument be changed and we cut across the grain, so called, the wood seems hard.

A microscopical study of the enamel reveals to us that the direction of cleavage of the enamel differs in different portions of its structure. Hence, familiarity with the tooth's histology would be a help to us in guiding the direction of the force applied in cutting the enamel to form. We also have learned, through the work of Dr. Black on "The Physical Characteristics of Tooth Structure," that the dentinal structure of different teeth varies but little in the amount of lime salts and less in its resistance to crushing stress. In fact, we know to-day that the terms "hard" and "soft," as relating to tooth structure, are misnomers. If the operator has been a student of facts and learned well the lesson on enamel cleavage and crushing resistance of dentine, he has, so to speak, a "soft" time of it. But if such studies have been neglected he is often "hard up against it."

With a well prepared cavity before us, complete in its proper planes and angles, we must recognize the work as a bit of exhibited engineering skill, worthy to be filled with material having physical properties indestructible in the fluids of the mouth, capable of adaptation to the cavity's walls and of resistance to masticative force.

In the care of gold from the time of purchase to placing in the cavity, there are two points of great importance to be observed—the atmosphere in which the gold is kept, and its annealing when the cohesive properties are desired. Gold is capable of attracting or absorbing to its surface many gases, the condensation of which on its surface destroys its cohesive or welding properties. Some of these gases are easily volatilized and others not so. The usual form of the condensation is in combination in the form of a salt—hence, if we can control the character of the salt formation, allowing a volatilizable one, it can easily be displaced by annealing. Such control we have by placing our gold in an atmosphere of ammonia, the resulting salt formation of the surface of the gold being easily evaporated. In the annealing two things are accomplished. All gases or resulting salts and other impurities are dispelled or burned off and the mass of the gold softened. The different pieces of gold are then capable of being welded together and are soft enough that the malleability may be taken advantage of in *spreading* the gold, thereby forcing it to adaptation against the cavity walls. We are told by the metallurgists and chemists that gold is one of the most malleable metals we have. Advantage can be taken of this property in the insertion of fillings by the use of convex faced pluggers. It seems to me strange that so little advantage is taken of this way of spreading the pellets of gold as they are placed and welded to the already inserted mass. Dr. E. A. Royce expounded "The Spreading Properties of Gold," "The Delivery of Force by Plugger Points" and "Gold Beating" so thoroughly and forcibly before the local societies of Chicago in 1893-4-6, that there seems to be little left to be said on the subject. These articles were published in THE DENTAL REVIEW in the order of the titles given December, '93, December, '94 and April, '96.

The specific gravity of melted gold is 19 and a fraction. It is possible to weld together piece by piece and to so condense the gold that the mass will have the specific gravity of melted gold, but it is not practicable to do so in the mouth. The degree of resistance to the condensing force in packing gold in a tooth's cavity is the peridental membrane's power to withstand the shock of the condensing blow. A condensation of 17 in specific gravity is necessary, however. A less condensed mass of gold is porous and allows the seeping in of moisture, which, of course, means mischief. That such condensation can be given a filling without detriment to tooth structure has been fully demonstrated as well as the fact that if the filling is not properly condensed it is necessarily leaky.

We come now to the last point to which I thought to call your attention. We may prepare the cavity with all care in "extension for prevention," with great precision we may cut the plane of resistance or "seat of the filling," the "step anchorage" may be carved with all an engineer's correctness, so as to overcome the loss of "retentive form" in so shaping the cavity's marginal outline as to give free access to all parts of the cavity that the "convenience form" may be well maintained. We may have overcome the difficulties in cutting the apparent "hard" or supposed "soft" structure. We have considered well the qualities wanted in the filling material and the gold selected has been kept in proper atmosphere. The annealing to cleanse and soften the gold, increasing its cohesiveness and malleability, has occupied our careful attention. The gold has been welded and spread piece by piece, as inserted, by instruments so shaped as to have this property of gold well in view, thereby producing greater adaptation of the material to the cavity walls. A sufficient specific gravity has been acquired in condensation to insure a moisture-proof mass. Indeed, all these points and many others may have been carefully looked after and perfectly performed; yet, if it be a proximal filling, and the "interproximate space" be not *well preserved*, our monument of manual dexterity, engineering calculation, artistic taste and scientific attainments is only a partial success—a house without a roof, a kingdom without a crown, a dentist without a degree.

As members of the healing art we have failed to heal if we have neglected to so shape the lost wall with an artificial substitute that in its *contact* with the proximal surface of the tooth standing next in line, the natural shape of the space between the teeth is not maintained in such a way that the gum will adjust itself to a normal position, allowing the excursions of food during mastication to pass buccally and lingually around the "contact point" and to slide over the incline of the normally positioned gum septum.

Of all the mistakes made in judgment on operative procedures I know of none that jeopardizes the comfort of the patient as does that of negligence in looking after the contact point.

And now, fellow laborers, in closing this emphasis on some of the more recent procedures in operative dentistry, I ask you to think seriously over these matters. When it is remembered that in eating a full meal we occlude the jaws on an average one thousand times, and the majority of civilized people eat two full meals a day, and the more common foods eaten require a crushing force to masticate them from twenty-five to one hundred and fifty pounds, the average would be high enough to make a great array of figures in the calculation of the amount of force coming upon, for example, a proximo-occlusal filling of a bicuspid or molar. Two thousand occlusions daily, with a force of at least fifty pounds to a bite, eating 365 days in a year for several years, with now and then an unexpected closure of some 150 to 250 pounds, figures so high that we dare not quote the result.

Then let us look well to seating that filling and provide against its tipping or being dislodged by either breakage of the walls or *straining* of the filling owing to a lack of sufficient *condensation* or insufficiency of bulk.

Finally, that during the twice 365 meals our patients are not put to the torture by food impinging on the gum septum in the interproximate space owing to a faulty *point of contact.*

CALCIFICATION A CONTROLLING FACTOR IN THE TREATMENT OF THE TEETH.*

BY GRAFTON MUNROE, A. M., D. D. S., SPRINGFIELD, ILL.

In this day of germ life and the controlling of all such organisms as are inimical to the health of man, and when environment has so much to do with the successful treatment of those organs which are located at the entrance of what is considered the inner man, it might be well for us who have to deal with these organs to consider the conditions for treatment before these members become complete structures. The development of tooth germs from life prior to infancy up to mature life is one of the most interesting phases of human growth. Pass the finger along the baby's jaw. Not only is there nothing which presages future teeth, but the jaws themselves seem too delicate and frail to become the sockets for such hard working portions of the human anatomy. Yet there are fifty-two germs hidden there, and they have started as early as the forty-fifth day of fetal life, waiting their time, though the most skillful dissection would with difficulty reveal their presence. Twenty of these are for the *first dentition*, at which period the child will begin to gnaw or chew his way through life; the others are for *second dentition*, running over a period from six to eighteen years, or even later. It is not the purpose of the writer to go into the embryonal life of the dental germ and follow it all through to the calcification of the dentine and enamel, but rather to take up that period when we are first consulted by parents in regard to the child's second dentition—a period when the calcification of the roots of these teeth has but just begun, and at which time injudicious filling may result in permanent injury to the usefulness of the organs treated. It is often a question asked by the parents of children brought in to us for treatment, "Why cannot these teeth be filled with gold?" Little do these questioners think of the growing tooth and its as yet soft and uncalcified roots. The first idea is that there is decay and it is best replaced by the most indestructible material.

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* Read before the Illinois State Dental Society.

The placing of any substance in cavities, produced by caries in children's teeth, which is likely to produce an irritating effect is an unwarrantable proceeding, and especially so when it is known that the calcification of the *central incisors* is not complete until the *tenth year of age* and that the all-important and most frequently carious tooth, *the six-year* molar, is likewise just past that period at this *tenth year.* It has occurred to me that there has been a slight misnomer in calling these teeth by the names of their periods of eruption instead of their completion. In considering the calcification of the roots of teeth the process is physiologically the same as the growth of the dentine and enamel, and until these structures are all complete the tooth is incomplete. In cases where the patients are so unfortunate as to have exposure of the nerve before the roots are calcified, what do we find? In the first place we find the necessity for great care being exercised in the application of arsenic, when this medicine is used as the devitalizing agent, and then when the nerve is ready for removal, the apparently cartilaginous condition of the roots renders extirpation of the pulp an unusually delicate operation, and puncture with instruments or forcing some irritant medicament through the foramen becomes a very easy procedure. With this sort of a procedure before us we are not safe when the *centrals, laterals, or first molars* are involved until after the *tenth year*, with *cuspids and bicuspids* until after the *twelfth year*, and with second and third molars until the *eighteenth year.* These teeth and their respective ages for calcification of the roots demand our consideration also in all such procedures like separations for filling and those methods employed in the regulating of teeth. While I have not scientific data for this statement, I venture to assert that much, and indeed a large degree of neuralgic conditions, found in after life of many patients could be traced to the effects of the overzealous operators who did not stop to think of the tender roots yet uncalcified but who went ahead rapidly with immediate separations, or placed in these teeth fillings which because of their possible irritating effect would produce direful results which it would take considerable time to manifest. The theory that "increased irritation produces increased growth" will bear me out in this assertion, for most of us are sorrowfully acquainted with the results of undue separation of teeth, or with the results of thermal changes through metal fillings.

Dr. Conrad, of St. Louis, in February *Cosmos*, 1892, speaking of irritating influences, says: "In recent years I have been devitalizing the pulps of some few teeth, and I have found in a number of cases there had been calcification, a great many more than I had imagined, and it is my opinion wherever we have calcification or any deposit which produces irritation we will eventually have death of the pulp, and unless we get some line of treatment or practice whereby we can avoid producing irritation and calcification or deposit of secondary dentine, we will in a shorter or longer time have death of the pulp following." This is quoted simply as confirmatory of the thoughts of your essayist, admonishing you that too great care cannot be taken in your decision as to what procedures you follow in the treatment of teeth in these formative periods. The extensive ravages of decay evincing in many cases the sad want of nutritive processes, which build up teeth of strong character, warrant the opinion that the age of the patient should be placed foremost in the decision as to the proper method to take in order to prevent disturbance of the calcification of the roots. When we take into consideration the fact that at six years of age the jaws contain not only the already erupted deciduous teeth but imbedded deeper all the permanent teeth also, it is not surprising that the effect produced by the many diseases of children, such as scarlet fever and others which cause inflammatory conditions in and about the jaws, results in the detention of the teeth leading up to dental irregularities. These are but a few of the plain manifestations of irritating influences.

Dr. Cryer, in January *Cosmos*, 1900, says: "There are two opposite results associated with inflammations within the jaws. One is suppurative, causing the break down of tissue; the other is the building up and hardening of tissue, through which the cancellated tissue is transformed into hard and dense bone. Through this hardening of the bone before the proper eruption of the teeth they become encased within their capsules in the adjacent bone, under which circumstances it would be impossible for the eruptive force to carry them into proper position. They are often held in their place of development or pushed in the direction of the least resistance, until resorption of the bone tissue occurs, and then they usually make their appearance in an abnormal position." Continuing, he further says: "The reason given for impacted teeth will afford a partial explanation for other deformities and variations in the region above the teeth. To avoid this deformity close attention should be given during the development, growth and eruption of the permanent teeth, also the growth of the alveolar processes, and great care should be given to the deciduous teeth, the mouth in general and the nasal chamber, and the naso-pharynx, and to any constitutional disease that may influence the formation of these parts. Diseased teeth causing inflammation should have proper attention, as they can bring about constructive periostitis or a suppurative inflammation."

Let this quotation cause you to give due attention to the evils resulting from unwise and overzealous efforts in the treatment of carious teeth during that period when mouths of our patients are full of organs yet in their formative state.

The suggestion of a palliative course of treatment until the teeth are fully calcified throughout their entirety is not out of place, and the use of plastics, such as gutta-percha and cements medicated with hydronaphthol, is a procedure worthy of the endorsement of all thoughtful operators.

A Simple Manner of Treating Fracture of the Lower Jaw.*

By W. A. Johnston, M. D., D. D. S., Peoria, Ill.

The title of this paper is, to a certain extent, a misnomer, but as a title was required, this will do as well as any.

I wish to report a case which presented some ethical, as well as mechanical and spiritual complications.

July 19, 1899, a messenger summoned me to the Cottage Hospital to "pull out a couple of loose lower teeth for a man." The messenger knew nothing more than that "the doctor" was there and had sent for me. It was half an hour before I could leave the office and I reached the hospital shortly after noon. "The doctor" had gone but had left word with the nurse that I was to do whatever was necessary but not to pull any more teeth than could be avoided.

The patient, a well built, muscular man of forty, was in bed partially under the influence of morphine, with his left shoulder bandaged, a cut on the left side of his chin, and a very well defined fracture of the lower jaw near the symphysis.

I need not go into the details of diagnosis which, as it was typical, are familiar to you all. This was Wednesday noon. The accident was caused by the caving in of a trench on Monday morning.

The nature of the injury had not been recognized by the physician in charge, who had merely bound up the contused shoulder, applied an adhesive plaster to the wound on the chin, and given morphia to relieve the pain. The man was so stupefied by the narcotic as to be utterly helpless; the nurse was willing but very busy. It being the noon hour, not a physician was in the building and my appliances consisted of two pairs of forceps and a mouth mirror.

I asked the nurse for some gutta-percha and she smilingly brought me a couple of yards of the gum tissue used for covering poultices to keep them moist. As it was the only thing available, I used it by folding several thicknesses, heating and pressing them together, then trimming the edges with a pair of scissors.

In spite of the difficulty of reaching the patient in bed, a very good apposition of the fragments was obtained, the gutta-percha adjusted and a Barton bandage applied with a pad under the chin.

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*Read before the Illinois State Dental Society.

The pad so placed has a tendency to prevent the fragments from being disarranged by lateral pressure of the bandage.

The next day I saw the case with the physician in charge. The man had had no more morphine and was quite intelligent. With the physician's help I adjusted a gutta-percha interdental splint after the method of Dr. Frank Hamilton and all went well until Monday when the patient's arm being in good condition he was discharged from the hospital and the physician retired from the case entirely.

The patient came to the office to see me late Monday afternoon, as drunk as a lord, with the bandages partly off, the splint displaced, the jaw crooked and the position of the fractured ends of the bone as bad or worse than when first seen. The explanation of his condition was that he went to see the boys at work on the trench, and they were so glad to see him that several asked him to drink. Not having good control of his vocal organs, he was unable to say "no," and after a few drinks he assayed to smoke a cigar. The cigar and the splint could not agree, so he managed to push the splint aside with disastrous results. My remarks to the gentleman at this stage of the proceedings I leave to the intelligent imagination of my hearers. Suffice it to say that he has been as sober as a judge ever since.

It was too late to do much that night, yet I did not dare to let him go, so in less than half an hour I dismissed him with a splint similar to the one which I pass around. Before taking this bite, for it is nothing more, I wired the lower front teeth together, from the cuspids on each side, with No. 26 silver suture wire. This supported the jaw somewhat, and prevented separating the fragments when the modeling compound was inserted.

My assistant, standing behind the chair, held the lower jaw, while I inserted the warm compound with the layer of gutta-percha in the center to prevent biting clear through. Then the jaws were brought together until the teeth struck the instrument, inserted a little to the left of the median line, to leave a hole for feeding purposes.

Being satisfied that the jaw had not been misplaced by the manipulation, I applied a bandage and dismissed the man for the night. When seen the next day the jaw was so comfortable and the man so sober and contented that I let well enough alone, directing constant use of a mouth wash after meals.

The man came in to report every day from July 24 until August 7, two weeks, when I removed the splint, found the mouth in good condition, made a new splint, which when hard I removed and trimmed, so that it offered few cracks for the lodgment of food, and reinserted. This he wore till August 28, three weeks, when I removed it permanently. He came to see me four times during the last three weeks to have new bandages applied.

As the man was drawing pay all the time, he was in no hurry to go to work, but in six weeks lacking two days from the time of the accident, he was free from mechanical restraint and could leave his diet of malted milk and liquid beef peptonoids for more solid fare. One week of this time was worse than lost at the beginning of the treatment, hence I moralize.

In my efforts to shield the physician, who had failed to recognize the trouble, did I not do more harm to the patient than good to the doctor? When I saw the patient with the physician, four days after he was hurt, he was perfectly able to come to my office, and had he come then I should have made a vulcanite splint, which he could not have misplaced, even if he did get drunk.

Another question arises, however; a shyster lawyer called on the man and tried to persuade him to sue the company for damages and the surgeon for malpractice. Had I discredited the surgeon and condemned him for not knowing how to treat the case, a malpractice suit would very likely have resulted.

In cases where I have made interdental splints of rubber I have always had more or less trouble in getting the impression out without displacing the fragments, and then it was with some difficulty that the splint was inserted after the several hours necessary for making the splint had elapsed.

In this case I was saved all this trouble, and obtained better adaptation than I ever did with rubber or gutta-percha.

The modeling compound was far less offensive when removed than gutta-percha would have been, and was more cleanly than most rubber splints I have ever seen.

I commend this case to you merely as an instance of what can be done in an emergency, quickly, easily and simply, with a material always at hand.

The result was all that could be desired, and the patient does not yet know that he was ill used at first.

Some Thoughts on Prosthetic Dentistry.*

By W. W. Moorehead, D. D. S., Aledo, Ill.

Prosthetic dentistry is the art of replacing tooth structure by substitutes which shall physiologically restore the impairment of the same and esthetically restore the natural expression of the face.

To the introduction of vulcanite has been attributed the downfall of this subject, at least of the mechanical part of it, and many of the best men have relegated this branch of their practice to the office boy or laboratory assistant. With the introduction of crown and bridge work began a revival in the mechanical part, but judging from the appearance of gold crowns on the anterior teeth, and artificial dentures that are ill-becoming to the one who wears them, there is yet room for the improvement of the esthetical part of our work.

Mechanical principles must form the basis of all prosthetic work, but it is not complete unless the effect is artistic. The denture may be constructed so as to restore the lost function of mastication, and polished so smoothly that the tongue can find no defects, but this is not sufficient. Nature must be imitated closely or we have failed in the highest sense.

No class of patients are in a better position to appreciate our work than those who have lost the natural organs of mastication.

To the lack of attention of the forms and shades in the natural organs, and haste in selecting artificial ones may be attributed many failures along esthetical lines.

While much good has been done by a number of practitioners, yet only a few have given us anything like a definite system of rules relating to the selection of teeth. Some time ago Dr. Grant Molyneaux presented some ideas on the subject which I will, with your permission, refer to. In Fig. 1 we see represented a vertical section of the ridge at the median line showing

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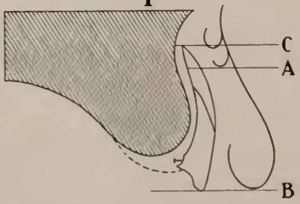

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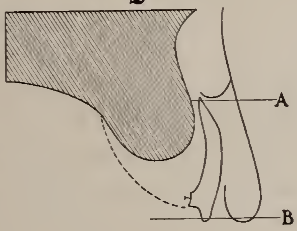
* Read before the Illinois State Dental Society.

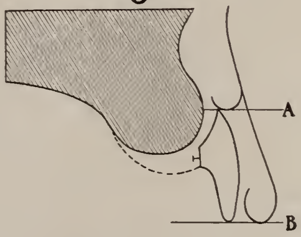
the positions of the upper lip B at rest, and the same at C elevated to its highest point, as in laughing. The space between C and B must either be filled in with a plain tooth or gum section. If the distance between C and B would not require a tooth too long for the proper appearance, a plain tooth would be suggested, as is seen in the figure. The second point to be observed in this same case is the "bite" of the tooth. In the illustration we find the pins on the lingual side nearer the cutting edge, and the major portion of the tooth extends above the pins; and it is at once recognized as a short-bite tooth.

It is obvious that a tooth with a longer cutting edge could not be used, because it would project too far below the lip line B and would expose too much tooth. Again if the tooth did not extend as high as A, the base of the denture would be exposed and an unsightly appliance would be the result.

2



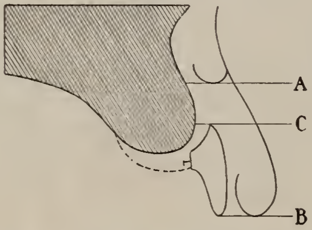
3



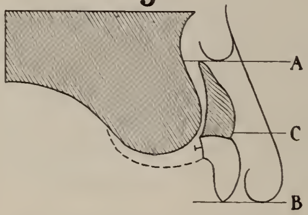
No. 2 illustrates a case where a plain tooth is indicated, but where a short-bite tooth is contraindicated. The lip B is longer and the elevation A is not as great as in No. 1. As for the appearance, a short-bite tooth could be used but by removing the pins so far from the ridge in order to bring the tooth to the lip line B, an unusual thickness of the plate is occasioned, which would be a serious impediment to the tongue in speaking. Therefore, we must use a tooth with the pins nearer the cervical extremity, and with the major portion of the tooth between the pins and cutting edge. This tooth will be recognized as a long-bite tooth, and is illustrated in No. 3. It will be seen that the ridge lap is shorter than in No. 1, for the reason that it is not necessary for the tooth to extend beyond the high lip line A.

No. 4 illustrates a place where a plain tooth is contraindicated, but where a long-bite tooth is indicated. The lip line is the same as in No. 3, but it will be noticed that the high lip line is considerably elevated, and is as much higher than No. 3 as from C to A in No. 4. It is evident that the space from A to B must either be filled with a tooth or porcelain gum, but in this case the distance from A to B would give a tooth too great a length for a natural expression; therefore, we must select a gum section with a tooth of proper dimensions but with a porcelain gum extension that will reach A, as is seen in No. 5.

4



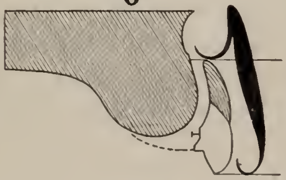
5



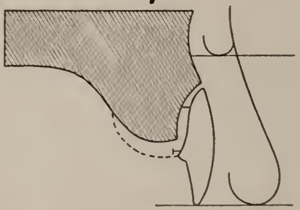
In No. 5 the length of the tooth is shown to extend from B to C, and the extension from C to A is of porcelain in order to hide the unnatural base of the denture.

No. 6 illustrates a case where a gum tooth is contraindicated. Owing to the excessive fullness of the alveolar ridge the use of a gum tooth would cause an unnatural protrusion of the upper lip, and if the same method were followed in the construction of a denture in this case as in the preceding illustration a plain tooth would also be contraindicated.

6



7



In this case a plain tooth is indicated in order to prevent disfigurement of the face, but an entirely different method of arrangement, as illustrated in No. 7. The six or eight anterior teeth must be arranged to rest with their necks slightly imbedded in the gum tissue.

The jaws being edentulous, we should endeavor to select a color that will harmonize with the patient's temperament, and if there is any doubt as to color a shade darker is to be preferred to one lighter.

We may be assisted in this work while pursuing operations at the chair by observing and making a record of the color of the hair, eyes, complexion of a number of patients; also noting and recording the forms and shades of their natural teeth. Some one may say this takes too much time, but time should not be taken into consideration if we ever expect to elevate this branch of the profession.

Nothing taxes our ability to a greater extent than the successful practice of prosthetic dentistry. While it does not require as much mechanical ability or manual dexterity as operative work, yet, as Dr. Allport has said, it is here that the dentist has a greater field for the use of his art.

It is for him to so construct substitutes for the natural teeth that they will harmonize with the works of the Creator that surround them, and be so true to nature in size, shape and position that they will not produce discord in the facial expression.

REPORT OF COMMITTEE ON ART AND INVENTION.*

BY HART J. GOSLEE, D. D. S., CHICAGO, ILL.

In submitting the report on dental art and invention your committee takes pleasure in calling attention to the many notable improvements in instruments and appliances designed for our use that are the result of the constantly increasing demands of an exacting, active and progressive profession.

Indeed, wrapt up as most of us are in the growth and advancement of our profession from a practical and scientific standpoint, it occurrs to me that few appreciate to the fullest extent what is being done for us in the way of lightening our burdens and otherwise facilitating our work, by the inventive genius of our fellow-craftsmen, and of those whose mission it is to supply and minister to our needs and wants.

These improvements, some of which are marvelous when we look back but a few years, are being constantly placed within our reach, and *verily* have much to do with our growth and progress; and now present a feature of such importance and magnitude as to warrant us in looking up the new things almost as zealously as we pore over the pages of our literature.

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*Read before the Illinois State Dental Society.

During the past year there have been issued over two hundred patents pertaining to dental instruments and appliances, and it has been my privilege to communicate by personal or circular letter, with over one hundred of the inventors, selecting only those, however, whose inventions in my judgment would prove of practical interest to us, as many are deemed of no special importance.

These letters to the inventors and manufacturers met with a very prompt and courteous response, and from those submitted to me I have selected the following for presentation to this society.

NO. I. GENERAL SEPARATOR.

While some may perhaps be familiar with this separator, it has been placed upon the market by the S. S. White Company recently, and as many may not have seen it, it seems deserving of further mention. Where immediate separation is necessary it appears to be admirably adapted, being large enough to handle and adjust with ease, is universal in application, and provided with guards which preclude the possibility of the wedge-blades impinging upon the gum tissues, a most important feature.

NO. II. RAPID ACTING MALLET.

An engine mallet, small, neat, and simple in mechanism, made either for the slip-joint or hand-piece and capable of adjustment to any desired strength of blow. Manufactured by the S. S. White Company.

NO. III. AUTOMATIC MALLET.

This mallet, styled the perfect automatic mallet, is a recent design of the Consolidated Company. It is small, very neat and simple in construction, and with a very easy adjustment seems to deliver a beautifully regulated blow.

NO. IV. CLARK'S NEW MODIFIED SYRINGE.

This modification is an improvement over the former syringe designed for either water or compressed air, by A. C. Clark & Co. The improvements lie in the ease of manipulating the valve, the impossibility of leakage and the increased length of the tube, which facilitates handling, and when the fountain cuspidor or compressed air is available is a most useful article.

NO. V. CRUTTENDEN CEMENT SYRINGE.

This instrument is the invention of Dr. H. L. Cruttenden, of Minnesota, and is manufactured by the S. S. White Co., and designed for the purpose of completely filling the canals of roots with cement preparatory to mounting crowns. Where one experiences difficulty in accomplishing such in the ordinary way this may prove very useful.

NO. VI. ASEPTIC SYRINGE.

This is a minim syringe, entirely of glass with flange on barrel for holding securely, hollow piston and platinum point, and while it answers the purpose of a perfectly aseptic syringe, it seems to be a little too frail.

NO. VII. CLAMP MIRROR.

This seems to be about the best of the numerous designs in movable clamp mirrors that we have had. It comprises a universal clamp and mirror attached to each other, with simple adjustment, by means of a very pliable lead wire, the bending of which when the clamp is in position enables one to place the mirror in almost any position and at any angle. In many instances it would prove of valuable assistance.

NO. VIII. HARVEY CLAMPS.

These clamps, the design of Dr. H. F. Harvey, of Cleveland, Ohio, are very ingenious, and I regret that I could not secure a complete set of them for the occasion. They are made by soft soldering two pieces of piano wire together so shaped as to present four points or spurs which grasp the tooth securely at each angle, and are intended for those cases which may be only partially erupted or of conical shape, where they seem admirably adapted.

NO. IX. MATRIX CLAMP.

These matrix clamps are the design of Dr. L. P. Leonard, of Minnesota, and are intended to securely hold the matrix in position, while allowing a freedom for marginal adaptation. The set consists of two, one for bicuspids and one for molars, and the wedge points are made so that they turn, which makes them applicable for either mesial or distal cavities. They are adjusted with clamp forceps.

NO. X. UNIVERSAL BROACHES.

A set of spiral well-tempered broaches designed by Dr. Kerr, of the American Specialty Company of Detroit. These broaches can be used to good advantage for removing pulps, enlarging canals, and carrying medicaments, and seem to be carefully made and beautifully tempered.

NO. XI. SIBLEY'S ROOT CANAL DRILLS.

A set of drills intended for enlarging canals, and opening through the apex of roots, in various sizes with bi-beveled point and long flexible shank. Where such is indicated, if ever, these drills seem less likely to break than any.

NO. XII. A. SCHULTZ'S ROOT CANAL DRILLS.

These drills are designed by Dr. C. P. Schultz, of Pawtucket, R. I., are in various sizes for straight and right angle handpieces, and are made of a compound wire, the inner one of which possesses considerable flexibility. If their use be confined to the removal of the contents of canals only, in careful hands, they may be useful, but the bud-shaped point is dangerous.

NO. XII. B. BEUTELROCK'S ROOT CANAL INSTRUMENTS.

While these instruments were exhibited at our last meeting, some new ones have been added to the set which is now extensively complete for both hand and engine use.

NO. XIII. ILLUMINATED RUBBER DAM.

A rubber dam now placed upon the market by the S. S. White Company, one side of which is coated with aluminum giving a bright, lustrous, reflectory surface, which in very many instances may be a great advantage.

NO. XIV. RUBBER DAM HOLDER.

The Knowles Rubber Dam Holder, submitted by H. D. Justi & Son, with a spreading frame to stretch the dam nicely out of the way, the points or ends of which are rubber tipped to prevent tearing or perforating the rubber.

NO. XV. ANNEALING TRAY.

A simple frame to attach to alcohol lamp for supporting a disk of mica, manufactured by the S. S. White Company. This could be improved upon by attaching the mica to a fine wire netting which would distribute the heat more evenly and overcome warping of the mica.

NO. XVI. COMBINATION ANNEALING.

Intended for either gas or alcohol and subject to the same improvement suggested above. Presented by H. D. Justi & Son.

NO. XVII. PLUGGER POINTS.

With the increasing use and popularity of mat or crystal golds comes a demand for a larger variety of plugger points especially adapted to their manipulation, and this is probably the largest and most complete selection for the purpose yet given us. They are intended for moss fiber gold manufactured by the S. S. White Company, and consist of 22 points finely serrated and of various shapes, sizes and angles.

NO. XVIII. DISK LUBRICATOR.

A novel idea in the preparation of a lubricant for disks, which is admirable in its application, enabling the operator to observe this necessary feature in the finishing of fillings, and being easy to handle and cleanly. Prepared by the S. S. White Company.

NO. XIX. CHAMOIS FINISHING DISKS.

These are made by the union of three layers of chamois, and being made in various sizes are very convenient for polishing gold fillings, being much superior to those formerly made with celluloid backs. Made by the S. S. White Company.

NO. XX. MITCHELL'S PORCELAIN FURNACE.

A very neat and compact electric furnace made by Ash & Sons and submitted by the Justi Company. This furnace is especially designed for inlays and individual crowns, and so far as we can learn, when used with a rheostat, is giving splendid satisfaction, working on either the direct or alternating current and fusing Close's body in from 10 to 14 minutes.

NO. XXI. INLAY MATERIALS.

These porcelain bodies were suggested by Dr. Joseph Head and are prepared by the Consolidated Company, put up in a splendid selection of colors, and of two grades—one intended for use with gold matrices and a higher fusing one for platinum. The density and strength of the body is good, and the shades all that could be desired, with which advantages it seems but a question of time until this class of work, where indicated, reaches a greater sphere of usefulness than it has yet attained.

NO. XXII. JOHNSON'S ENAMEL CLEAVERS.

A set of three instruments designed by Dr. A. G. Johnson, of Chicago, for the removal of enamel in the preparation of roots for crowning. The designs and universal application of the instruments make them most admirably adapted for this difficult and arduous work, and while they may seem light, if properly handled they possess every necessary strength, and the angles and temper are particularly good.

NO. XXIII. GREEN'S CROWN DRIVERS.

Invented by Dr. L. O. Green, of Chicago, for the purpose of driving bands and crowns into position, and adapted to either a socket handle or automatic mallet. While I cannot commend the practice of driving bands or crowns into place, because it seems unnecessary on properly prepared roots, the designs are good for the purpose intended.

NO. XXIV. PROTHERO'S ROOT TRIMMERS.

A set of two instruments designed by Dr. Prothero, of Chicago, thin bladed, file cut on one side, and hard tempered, for the purpose of smoothing down the sides of roots in their preparation for crowns, for which purpose they seem well adapted.

NO. XXV. ALLEN'S CROWN HOLDER.

An ingenious little device, the invention of Dr. Allen, of Billings, Montana, designed for the purpose of securely holding gold crowns while finishing and polishing. The very simplicity of it readily commends it to all as being one of the little things which are almost indispensable. It consists of two steel bars riveted together in the center, the ends of which are rubber tipped to prevent crown from slipping off, and varying in size so as to accommodate either a molar or bicuspid crown.

NO. XXVI. AMES' CEMENT SPATULA.

One of the many valuable little things designed by Dr. Ames, of Chicago. It is made of heavy German silver, which is not acted upon by the acids, and is so shaped with a thick center and gradual taper to the edges as to render the mixing of cement very thorough and easy.

NO. XXVII. DUNN'S ANTISEPTIC SYRINGE.

This syringe has been practically tested as a lachrymal syringe, as an aspirator, and as a dental syringe, and for accurate medication seems to meet all the requirements of antiseptic surgery in a bulb force syringe. For treating pyorrhea pockets it is ideal.

The medicament does not come in contact with the bulb, this being prevented by a very simple valve in the bulb end of the glass barrel, the air which operates it being admitted through the bulb.

It can easily be taken apart for sterilizing and cleaning both the needle and the barrel.

It seldom gets out of order and is always ready for use.

NO. XXVII A. DUNN'S ANTISEPTIC DROPPER.

This glass dropper is inexpensive, and will be found very useful as a carrier for peroxide of hydrogen, acids and medicaments of various kinds in the treatment of the hard and soft tissues, and as a dropper for accurate compounding of various medicaments used in dental practice.

Both of these syringes were designed by Dr. J. Austin Dunn, of Chicago, and are far superior to anything for the purpose yet given us.

NO. XXVIII. BLACK'S SAW FRAME.

A new design from the productive mind of Dr. G. V. Black, which will at once commend itself. The saw is adjusted to the frame and held securely by a threaded bolt which passes through the entire length of the handle, with a screw cap at the end. Manufactured by Sibley & Co.

NO. XXIX. CROWN SLITTING FORCEPS.

A new instrument recently made by the Consolidated Co., designed for facilitating the removal of gold crowns by slitting the bands. It is an improvement upon those already on the market, and when it is not necessary to preserve the continuity of the band for further use, it removes the crown very easily, and is nicely made.

NO. XXX. CLEMENT'S AMPUTATING FORCEPS.

Another recent production of the Consolidated Company, for cutting off sharp, jagged projections of the alveolus after extracting, for the purpose of hastening absorption and promoting healing of the parts. A very useful instrument in extensive extraction.

NO. XXXI. NEVIUS' FORCEPS AND ELEVATOR.

These instruments are the design of Dr. L. W. Nevius, and the forceps seem nicely adapted to those cases of irregular and crowded dentures where extraction is necessary and where the forceps with beaks of ordinary size would not answer the purpose. They are for right and left, upper and lower, and one beak is very narrow, which permits its free usage in those cases without interfering with approximating teeth. The elevator is of a new and universal angle, and seems very useful for the purpose.

NO. XXXII. BROPHY'S GASOLINE BLOWPIPE.

This blowpipe is the design of Dr. R. C. Brophy, and manufactured by the Dentenax Company. It is especially adapted to the use of gasoline, in which respect the valve feature which enables one to control the flame with perfect ease, and the great variation in the size of the flame make it very useful.

NO. XXXIII. BROPHY'S GAS BLOWPIPE.

Made on the same lines as the one intended for gasoline and subject to the same advantageous features.

NO. XXXIV. ASH'S RUBBER BLOCK SWAGER.

A very useful article for swaging cusps and inlay matrices, presented by Justi & Son, and consisting of a heavy steel cylinder plunger. For this work splendid results can be secured by the use of the swager.

NO. XXXV. GRITMAN'S ANATOMICAL ARTICULATOR.

This articulator is the design of Dr. A. D. Gritman, of Buffalo, and while practically a modification of the Bonwill, presents several new features. The arrangement of artificial teeth according to the laws of articulation, as presented by the late Dr. Bonwill, were never so favorably appreciated as now, and with the use of such an articulator, together with the Snow face bow, which preserves the same relation between the base plates in the mouth and upon the articulator, much accuracy can be depended upon.

NO. XXXVI. ANTES-LEWIS ANATOMICAL ARTICULATOR.

Made by the Buffalo Dental Manufacturing Co., and presenting similar features and advantages as described in the above. This one, however, seems a little heavy to handle easily, while the principles are good.

NO. XXXVII. IMPROVED CROWN ARTICULATOR.

Made by the S. S. White Company recently, and differing from former designs in that it accommodates models for the anterior part of the mouth much better than the old style.

NO. XXXVIII. MASON'S ELECTRIC SWITCH.

A new improvement in a foot switch for electric engines recently designed by Mason & Co., the feature being in the neatness of its construction and the ease of reversing and stopping.

NO. XXXIX. BROPHY'S INVESTMENT COMPOUND.

A new preparation for investing suggested by Dr. R. C. Brophy and manufactured by the Dentenax Company, which seems to be ideal, possessing to a faultless degree all the requirements of an investing material; being high fusing, dense and strong, not too coarse for models, a good conductor of heat, and neither shrinks nor expands to any extent under any degree of heat.

NO. XL. CARMICHAEL'S NAPKIN HOLDER.

Designed by Dr. J. P. Carmichael, of Milwaukee, and consisting of two sliding steel bows for the retention and adjustment of the napkin closely to the chin.

NO. XLI. COOLING ATTACHMENT FOR IMPRESSION TRAYS.

This is an ingenious and somewhat amusing little device, manufactured by Dr. A. M. Jackson, of Milledgeville, Ga., and intended for cooling wax and modeling compound impressions in the mouth, which is accomplished by adjusting the water-tight compartment to the tray and forcing a stream of cold water through it by means of the bulb and tubing.

NO. XLII. NYMAN'S DEFLECT-EJECTORS.

While these most useful instruments have been presented here before and are not entirely new, the features possessed by them of deflecting the tongue and ejecting the saliva at the same time, which can be accomplished by the patient, thus allowing the operator the freedom of both hands, for many operations upon the lower teeth are, in my opinion, worthy of a second presentation.

NO. XLIII. KIRKWOOD'S COMBINATION ASSISTANT.

This has also been presented before but now contains some new features which make it very interesting. It includes a Bunsen burner, cotton holder, waste cotton catcher and broach stripper, support for hot-air syringe, annealing tray, sponge holder, sterlizing vessel, and tray for warming gutta-percha and instruments, in a decidedly compact form.

NO. XLIV. AUSTIN'S RUBBER PLATE FINISHER.

A handy little thing, not entirely new, but of much assistance in finishing rubber plates.

NO. XLV. AUSTIN'S ENGINE WHEEL TRIMMER.

A new and novel device designed by Austin & Company, of Chicago, which is to be attached to the engine standard, for the purpose of truing up carborundum stones. By the use of this many of these stones may be saved that would otherwise have to be thrown away.

NO. XLVI. DENTENAX TEETH.

While these teeth are too well known to be included, perhaps, in such an exhibit as this, yet in view of the fact that they have not as yet come into general use, I feel warranted in presenting these specimens. The Dentenax tooth may be safely regarded as having passed the experimental stages. In the construction of bridge work as well as individual crowns its usefulness has been demonstrated. It would seem unnecessary to enter into a description of the tooth here to-day. It presents many new features and the reports are favorable among those who have used them. I would call special attention to those designated as *slanting teeth*, for bicuspid and molar dummies for bridge work, by the use of which may be avoided the appearance of and necessity for gold cusps.

NO. XLVII. WHITE'S NEW CHAIR AND CUSPIDOR.

These two articles have made their appearance upon the dental horizon within the last year and seem to possess many novel and valuable features, which I shall not attempt to describe or enumerate as they are on exhibition at the meeting.

NO. XLVIII. SIBLEY'S NEW CHAIR AND CUSPIDORS.

These are also new during last year and the improvements claimed will warrant you in looking them up, since they also are on exhibition at the meeting.

NO. XLIX. BLACK'S MAUNDYNAMOMETER.

An instrument for measuring and recording the force of the thrust of an instrument held by the hand in condensing gold and amalgam fillings, and for registering the differences in the power of thrust by different persons. A recent and most valuable invention of Dr. G. V. Black, who will be glad to explain its usefulness.

In conclusion permit me to acknowledge my indebtedness to Dr. L. S. Tenney, of Chicago, for his efforts and assistance in securing and mounting the exhibit, and to the inventors and manufacturers for courtesies extended.

PROCEEDINGS OF SOCIETIES.

Illinois State Dental Society.

Discussion on paper, "Pyorrhea Alveolaris, So-called," by Dr. A. H. Peck, of Chicago.

Dr. C. B. **Rohland**, of Alton (opening discussion): When Dr. Peck handed me his paper to look over, by way of apology for not putting it into my hands earlier, he very naively volunteered the information that there was not "anything in it, anyway." I think there is not a soul here who has had the pleasure of listening to this paper but will agree with me, to disagree with the author, on that particular point, at all events. The paper may not be very deeply and confusingly scientific. Perhaps that was what Dr. Peck meant to apologize for. If so, I am glad he did not have time to make it so, and I, for one, wish to make my acknowledgments to him and thank him for it. In these latter days it is refreshing to come across a paper on this subject that will give one clear and definite ideas in language that an ordinary mind can grasp without running the risk of an attack of vertigo. Even a cursory review of the literature on this subject, from the time of Fauchard down to the present, if one is imbued with a truly earnest desire to arrive at something definite, to get a clear idea, I think is enough to bring the ordinary mind to the verge of imbecility before he gets to the end of his task. About the most definite impression he will have for his labor is, that the profession has been like a man shut up in a dark cavern blindly groping around for some exit, with only here and there a faint ray of truth from the outside to encourage him, and these faint rays apparently emanating from diametrically opposite points, with *ignus fatui* innumerable scattered about to confuse him and lead him off into blind alleys. Now may it not be that we are making a mountain out of a molehill; that while we are looking through our telescopes and eagerly searching for the truth away off on the confines of the unknown, may it not be that it is lying unheeded right before our very noses? May it not be, as Dr. Peck suggests, that it is nothing more mysterious than simply a plain, everyday inflammation following its usual logical course, the initial causes of which are usually local and traumatic? Now what can be more simple and what can be more in accord with the treatment that clinical experience has shown us, so far, to be most successful? Nearly every one will agree that there must first be an irritation sufficient to establish an inflammation that progresses until it reaches the alveolar process and affects the peridental membrane, before pyorrhea can begin, and that the initial irritations are usually traumatic, some of which the doctor spoke of. And further, as Dr. Peck suggests, that this irritation may also come from irritating drugs or materials that are carried through the circulation to different parts of the body, including the oral cavity, and there eliminated, or partially eliminated by or through the peridental membrane, thus causing that irritation that is necessary to start the trouble. It seems to me that this, too, is a very happy explanation of how uric acid and other morbific products exercise such a potent influence in the inception and progress of this disease. They are carried through the circulation and in the process of their elimination they irritate the gum and tissues; inflammation of the soft parts follows, with the usual progressive pathological conditions, until the tissues are broken down and a field is open for microörganisms to get in their work. Now then, whether preceding this latter stage there is a special pyorrhea bacillus that establishes its virulent energies at this point and continues the work, or whether the progress of the disease is due to just the ordinary pus producing microörganisms that are usually found in the mouth, that is so far as our clinical work is concerned, I take it more interesting than essential. Of course it is always important to know all that we possibly can about any subject, but so far as our clinical procedure is concerned, it seems to me that the simple fact that the deposits are there tells us just what we have to do. They must be removed. Now, as to how these deposits are placed there that are such a usual accompaniment of this disease; that, of course, goes into the realms of speculation. I have seen nothing that seems to me simpler and easier to believe than that the inflammation proceeds until it involves the alveolus, and that these deposits on the roots of teeth are from the alveolar substance, that they have their origin there. Inflammation proceeds until it attacks the alveolar process; it is broken down, the lime salts are precipitated in a state of minute division, they are held in suspension by the exudates, and by force of contact, deposited and agglutinated by bacterial energy against the roots of teeth which have been previously prepared for this deposit by inflammation that has proceeded so far as to destroy or materially alter the character of the peridental membrane. Now whether that is a correct theory or not I am not prepared to say. Neither does it matter. It will make no difference in clinical procedure, anyway. It is sufficient for us to know that the deposit is there and there is but one thing to do with it.

Now, as to the nomenclature—what to call this disease that we have under consideration. Anything will do, only so it is mean enough. Phagedenic pericementitis! That has a low-down, mean sort of a sound, and yet that does not seem quite equal to it. If it were possible to add two or three real good, hard, solid, vicious adjectives to it, it might perhaps half way meet the situation, for I verily believe that if the devil is as he is represented to be, the father of liars, pyorrhea must be a twin brother to the fraternity! There is certainly nothing that we meet with in all our experience that is more deceptive, more unsatisfactory and aggravatingly satanic to deal with than the disease under consideration. Now I still think so, notwithstanding the positive claims made by some of my truthful brethren, that they cure 90 per cent of the cases that come to them—mind you, I say "cure," not "can cure"—because I really do believe that this disease is curable. I believe if it is treated faithfully and thoroughly on the lines laid down by Dr. Peck fully 90 per cent can be cured; *providing*, that the treatment is thorough, really thorough and continuous; *providing*, that the deposits are all thoroughly removed, absolutely removed; and *providing*, that the patient will thoroughly and faithfully supplement the treatment at home; *providing*, faulty occlusions, if present, are corrected; *providing*, that the operator will establish normal conditions, locally and systemically, and keep them restored. Now I have named enough provisos, that will materially reduce that 90 per cent, and will almost bring it to the vanishing point; and there are others. Take, for instance, the matter of the removal of deposits, which is so absolutely necessary for success; how often can we be absolutely certain that this has been effected? No matter what the skill may be, what the delicacy of touch or how adaptable the instruments, there are cases that seem to defy all these combined. I sometimes feel as though the Briggs' method of extracting, cleaning and replacing is the only method that will come anyway near meeting these cases; and yet, as I look at the prognosis in the light of our experiences with replantation, the results are hardly certain enough to justify.

There is one step in the matter of treatment that I believe Dr. Peck failed to mention, a step that is just as absolutely essential in most cases as the removal of the deposits. Most of the teeth that come to us in this condition are loose. Fixation after treatment is an absolute necessity. If the teeth are loose, no matter how well they are treated, if there is movement after nature once proceeds with the process of repair, success cannot be looked for.

Dr. G. V. Black, of Chicago: No one else seems to want to talk, so I will stir this matter up a little. There are one or two things I perhaps have said before but would like to say again. You all know how wide apart the profession is over this group of diseases, how far asunder our views are, how differently men think of this group of diseases. Have you ever thought as to the whys and wherefores of this difference of opinion? Here is a group of diseases that we study clinically, and only clinically.

Nothing has developed that is of importance in connection with them that we are able to study by laboratory methods. We are unable to study them definitely. People do not die of these diseases; we do not get cadavers from which we can make sections and reduce the study of the pathological processes of this disease to laboratory methods. And it is for this reason that our views of it are so divergent. Our views of it are divergent simply because we do not understand it, and it seems to be probable that they will be divergent until we do arrive at some method of laboratory study. Of late there has been some effort to make this study upon animals, to produce the disease artificially and then make studies of the disease produced. Something similar to some of this group of diseases has been found in dogs and cats that are upon a diet abnormal to them. These, so far as I have been able to examine them, seem to belong to the calcific group rather than to phagedenic pericementitis. The calcific group are much easier studied, much easier handled than phagedenic pericementitis. And I think generally, as the diagnosis goes, those cases that are successfully handled belong mostly to the calcific group, not the other. Cases of phagedenic pericementitis do get well, but most of them do not get well; indeed, in these cases I have been in the habit of saying to my patients, "You are never to consider that you are cured." Of course, we are gaining some experience in the handling of these cases. This experience, I am sorry to say, so far, seems to confuse rather than to confirm any one general line of treatment. I know of no cases that are cured by one operation, or by a few weeks or even a few months treatment. I have seen none in my practice, except of the calcific variety, that have been cured in this way. It has required years, usually, and I think it will require years in the future if these are cured. We may discover something, if we can get at it in a laboratory way, that will help us out, and I wish that we could; but until then we will have to adopt this slow method of continuous work with these cases. In my own work with this I feel, and I know that in the large majority of cases we may tide them along for years and preserve the teeth so well that they will be useful, providing we have taken the case early enough in the progress of the disease. I not only know of this disease as it appears among the patients that have come to me, but I have had a pretty close personal experience with it in the loss of all of my upper molars and bicuspids, and it was so insidious in its attack that those teeth were practically lost before I knew it had begun. In some of the other teeth it is practically well. I know a great many of these cases may be cured or kept in fair condition if a persistent, careful study of the individual case and careful treatment is followed week after week and month after month. I say continuously; it will not do to stop, it will not do to say that this disease is cured, for years together. In this way I have kept along cases in fairly good condition for ten and fifteen years, and so far as I know they are doing fairly well yet. Some of these cases have gone to the bad in spite of everything. Some of these cases have been so severe, the course has been so rapid, that it was practically impossible to do anything except remove certain teeth in order to get control and prevent the loss of the others.

As to the etiology of the disease. After the study that I have made of it I do not know that I can say any more than I have said in the papers in the American system. I do not see any good reason, so far, for changing materially the views there expressed. I have followed through pretty near everything that has been written upon this subject; I have had abundant opportunities for the study of the disease as presented by patients who have come to me; and yet, I see very little reason for changing my views upon any of the points that have been brought up. Certainly I should insist upon a classification of these diseases. They are distinct and separate, as typhoid fever is distinct from pneumonia, and to treat them all under the one head of pyorrhea alveolaris is simply to confuse the younger members of the profession and all who are seeking light upon this subject.

Dr. J. N. CROUSE: What is your opinion of the advisability of extracting and cleaning the teeth and putting them back, in any case?

Dr. BLACK: No good at all.

Dr. CROUSE: That is what I thought.

Dr. BLACK: The great majority of those teeth that have been cleaned and replanted, the most successful of them are lost from absorption of the roots within five years, and it is a pretty bad case that I cannot hold in tolerably good condition for that length of time without extracting and replanting.

But I do wish we could devise some means of subjecting this disease to laboratory study. It is my opinion that until we can do so we will not come much nearer the truth in the matter than we are now.

Dr. GEO. A. MCMILLEN, of Alton: I have just a thought to offer upon this subject. The origin and cause of this disease seem to be in obscurity and the great minds of our profession do not agree upon it. I have long since given up the idea of trying to find out the origin, but of its cure I have just a word. Dr. Rohland made the remark that if the tooth could be thoroughly cleansed the disease could be cured. The only tooth that I have seen thoroughly cleansed, that was affected with what I call a true case of Riggs' disease, is one that has been extracted. I have not the skill nor ability to thoroughly cleanse the roots of such teeth in the head, and while there may be men who can do it, there is a very grave doubt in my mind as to whether they do or not. And, as I before said, the only way to cleanse it is to take it out of the mouth.

Now one thought as to the origin. My observation has been that it is the lower front teeth, and possibly the upper first molars that are affected with this disease first. That being the case, it is possible that the salivary glands and ducts discharging their contents upon these teeth may bring about the disease. However, that is of little moment. It has been my practice for years when I have found a mouth in the condition described, to extract those teeth so affected and devitalize the teeth upon either side, that is the tooth immediately back and in front of the tooth so affected. If the four lower teeth, for instance, were loose from this cause, and the cuspids had not yet been affected, I would devitalize the pulps in those cuspids, and I can say with all truth that I have retarded at least for years, under my personal observation, this so-called Riggs' disease, for a so-called dead tooth, that is, one with a dead pulp, is never affected with this disease. Some years ago a lady came to me with what I considered a true case of this disease. There were two teeth, at least, upon each side of the lower jaw not affected; or rather, they were affected by decay and were crowned as much as six or seven years ago. I did not see that lady until lately, and she came to me with every other tooth absolutely loose. These four teeth were as sound as they ever were, so far as I could see; there was no irritation, no pus exuding. Now what caused these four teeth that were crowned years ago to be entirely solid and firm when every other tooth was loose, I do not know, unless it was the devitalization of those roots; they are standing to-day, and they are the only teeth in her head. And I can cite these cases one after another, and it says to me plainly that by devitalizing ahead of Riggs' disease you can stop it. I have done it many times, and it is worth a trial at least.

Dr. C. R. TAYLOR, of Streator: I believe the mission of dentists and physicians is to prevent disease rather than to cure it, and I believe that Dr. Peck in the latter part of his paper stated the point that we have finally got to come to. As Darwin said, in his "Origin of Species," and one of the fundamental principles that he lays down as to the growth of certain organs, is "the use or disuse of certain organs. If they are used their functions increase; if they are disused they cease to be." And I believe that is the point we have got to go to, is to find out what is the cause of this disease. Does it come from lack of use? I think that the fundamental principle of this whole disease, affecting the soft tissues of the mouth and the teeth, is the lack of use. Civilization brings many benefits, but in its train also it carries many defects and evils that we have at the present day. It is the lack of use of the organs of mastication, and it not only affects the organs themselves, but it affects the soft tissues, making them more susceptible to the attack of certain diseases that otherwise in perfectly healthy, useful condition they would be able to eliminate and destroy. S. Thompson, the naturalist, who is writing some very interesting and attractive articles, says that no one can tell why the flamingo is free from malaria or the polar bear from uric acid. The probabilities are that those animals who could not withstand the conditions of life peculiar to their environment have ceased to be. And so it is with our teeth. Those people who cease to observe the uses of the mouth for masticating will cease to have teeth. Our whole thought, largely, is wrong in that we are trying to cure something rather than to prevent it; our whole methods are palliative rather than prophylactic. I think we have got to study how this disease shall not occur, rather than try to cure it.

Dr. GEO. D. SITHERWOOD, of Bloomington: I don't know whether I know anything about the subject either, but I wish to commend the paper. I am glad that I am present at this meeting to hear a plain, sensible presentation of this subject. I read in the *Items of Interest* that a certain tribe of American Indians are free from this disease. I do not know whether this is a true statement or not. I hardly think that we will ever be able to prevent this disease and we will always have it to treat while we are dentists. I heartily commend the statement of Dr. Rohland with reference to cleaning the teeth and continuing that course of treatment which will, at least, if not cure, ameliorate the condition. One gentleman spoke about devitalizing. In my own practice I have found great benefit in devitalizing loose teeth and then fix them with bands or wires; in fact, I think I have saved some teeth for quite a number of years by devitalizing that otherwise would have been lost in a very few months. The hearty coöperation of the patient is an absolute necessity if we are to do any good with these cases; in fact, I think a great many failures are caused by lack of coöperation with the patient; not using their teeth properly, not keeping them brushed properly, and other personal habits. That a large proportion of these cases are cured, or at least put in a comfortable condition by a large proportion of dentists of the present day, I also believe. I see a good many patients that come to my office who have been treated by good dentists in other cities, and while they are not to say entirely cured, yet they have been made comfortable and they have expressed their gratitude to certain gentlemen. Indeed, I have had a few come to me from Dr. Rohland, and they have expressed their gratitude for his persistent treatment. And so I think we should not be discouraged. While we know little or nothing about the origin of the disease we should keep on with the present methods, and while the treatment is different by various dentists, yet with the present methods of treating we certainly are gaining ground. I would not have the impression go out that we are losing, and if we will not finally achieve perfect success, we will achieve a measure of success that will be an encouragement and a gratification to our patients as well as ourselves.

Dr. A. W. Harlan, of Chicago: The subject of Dr. Peck's paper is one that probably has interest to every man or woman in the room who is practicing dentistry; the care and handling of loose teeth or loosening teeth, or teeth that are likely to become loose. The résumé of the work of many authors by the essayist was very good and much to the point. The thing that I wish to speak about particularly is the progress that has been made in the treatment of loose teeth in the past twenty-five years. Prior to that time the methods of fixing teeth that were loose so that they could be treated surgically or medicinally, were not known. The method of banding teeth for that purpose, the method of wiring teeth or the method of fixing teeth together by imbedding wires in the cutting edges and placing fillings over them, was not known. Prior to 1875 the instruments that were used in general —except those of Riggs himself—were few and far between and extremely clumsy. The therapeutics of diseases of the gums, in spite of the remarks of many writers, was very lame and not to be relied upon. Every once in a while I hear some old fossil get up and say that in 1843, or '39, or '27, or something like that, all of these things were talked of and used for this, that and the other purpose. But when you read the books that contain the description of the methods of treatment you will find that that was not true. Why, even the germ theory of disease, although it pretends to date back 150 or 200 years, and does in a fleeting sort of a way, actually did not begin to be put into practice from the clinical standpoint until after 1867, although during the war between Prussia and Austria some antiseptic methods were practiced. I heard the late Dr. Atkinson say that he was present at an accouchement in 1839 when bichloride of mercury was used as an antiseptic. But what does one isolated instance of that kind mean if he did not promptly give it to the profession so it could be used? Clinically and practically of what value was it?

Now, in the treatment of loose teeth, to say nothing about the cause of the loosening of teeth, what have we gained? Since 1875 we have gained this one thing, that the teeth must be fixed; that certain teeth must have their pulps destroyed, for two reasons: One to divert what little nutrition might have gone to the living pulp to the surrounding tissue, and the other to render the affected teeth less sensitive and sensible to the touch of instruments that would irritate them and cause the patient to shrink from the heroic operations that must be performed. In addition to that, since 1875, mind you, most all of the germicides and disinfectants and coagulants and stimulants have been introduced into dental surgery for the express purpose, or diverted to the use of dental surgery for the express purpose of treating these pockets so as to destroy microörganisms and their spores, and for another purpose, to create a new surface of the diseased tissue by burning out the diseased surface that had so long been in contact with pus and microörganisms and other effete matter at all injurious to the teeth. I say that this is a great step, it is a decided advance, and I wish you gentlemen present to understand that if you wish to get any success at all in the treatment of loose teeth, you must consider the denture above and the denture below as a whole; and if there are teeth that are irregular in their occlusion, and if there are teeth that are somewhat out of place, you must first make that occlusion as nearly as it should be to make those teeth useful, and then place the teeth back in the position that they formerly occupied, as nearly as possible, and hold them there so that that patient can use the teeth and give them the exercise that they need. In addition to that, the absolute surgical operation, the operation that is commonly called scaling, etc., must be done with the greatest fidelity, and no shrinking on the part of the patient must deter you from making it complete. And when you have removed the deposits from the roots of the teeth and have destroyed the old surface, and washed and disinfected and cleaned these pockets, if it is only two or three at a single sitting, you must then inject something in there that will constringe and burn and coagulate and cook so that there will be a new surface, so that there will be a possibility for a reattachment to those teeth, and that is the only way that you can get along. I have read all the books that have been printed on this subject in English, as well as I could, and I have read about the rare cases, etc., and I want to say that Dr. Black was just exactly right when he said that you cannot cure a case of this kind in one week or two weeks or six months or twelve months. You have got to keep them right under your notice and your care and you have got to have the people help you and coöperate with you, and you must correct some of their bad habits of eating, of drinking, of hygiene in general, and especially with reference to the hygiene of the mouth, which is so little understood by the dentist himself. That has got to be done. Those people who breathe through their mouths all the time, stop it. If you cannot do it by any other method, make them bathe and exercise, etc., or use laxative waters and reduce them so that they can finally breathe through their noses; and if you cannot do that, get the foreign growths cut out. I send every patient that comes to me who is a mouth-breather almost instantly to some one to clear up the nasal tract, and I say to them, "I will not do anything for you until you can breathe through your nose." And in some cases I even furnish them with a bandage and show them how to apply it, so they can tie their jaws together so that when they wake up the next morning they will not find that the roof of their mouth and the tongue are dry and the lips cracked and bleeding. I feel very much encouraged at the aspect myself, because I try to keep in touch with all of the literature upon this subject.

In regard to the remarks of the gentleman from Alton who said that he destroyed the pulps of teeth on either side of the loose tooth. Sometimes that would be permissible. I should not care particularly about destroying the pulp of a central incisor and a lateral incisor on the other side for the sake of saving the central in between, in all cases; once in a while I might do that. I would destroy the pulp in the central incisor that was affected and I would correct the occlusion, and you can do that heroically and vigorously. I had a case a while ago of a man, a great big man who breathed through his mouth, and by simply cutting off the incisal edges of the inferior incisors so as to make everything on a line, and a little bit of treatment with a good deal of heroism about it, and the complete cooking and boiling down and burning and melting of those soft surfaces, two or three treatments of that kind cured the case. I say cured, because he comes to see me once in a while and there has never been a recurrence of the discharge of pus or any inflammation around the teeth, and now he has from time to time a little bit of ordinary salivary calculus on his teeth instead of suppuration and bleeding and dirty mouth.

Dr. C. P. Pruyn: There are several of my friends here who would be glad indeed to hear from the president of the society on this subject, knowing that he has had a large experience in this work.

Dr. R. N. Laurance, of Lincoln: I simply wish to say amen to everything that Dr. Harlan has said.

Dr. T. W. Brophy, of Chicago: I have only a word to say, and that is to commend the paper and express my appreciation of the sentiments therein expressed, and to state that Dr. Harlan made the best speech to-day that I ever heard him make. Several years ago it occurred to me that the proper way to rid the tissues of this growth which we have about the teeth, and a breaking down of the soft parts, was to do exactly as Dr. Harlan has stated. In the paper nor in the discussion has it been stated to what extent this disease may go and yet be amenable to successful treatment. For my part, I formerly made mistakes in attempting to cure these cases after the process had gone to such an extent that the teeth were almost without support. Now, I really think that it does not reside within the power of man to reproduce the alveolar processes. If by disease they are lost and only the upper third or fourth or possibly the upper fifth of the root of the tooth is within the alveolus, I think that the time has passed when such teeth are to be saved. It is a mistake to attempt to reproduce the alveolar process. It is a mistake to attempt to preserve the teeth after the alveolar processes are largely gone, and a line should be drawn somewhere so that the young man who has not had a large experience in the management of these cases may not attempt to cure hopeless ones. If he attempts to cure a case and fails because the disease has progressed so far that it is impossible to effect a cure, the failure will fall upon him and he will have to record it as a failure in his practice. If he is able to tell the patient that there is some hope of restoring those teeth to health and usefulness, and employ the means that have been mentioned here of first following an old surgical principle, namely: "When a part is diseased it should be put to rest," by adjusting suitable bands to the teeth, which are far better than ligatures to steadily support them; they are more cleanly and more certain of holding the teeth firm than ligatures. If he will adjust bands in this manner and then proceed to remove the deposits, and if he is able by so doing to restore the teeth to health and arrest the further destruction of the alveolar process, he has achieved for himself and for his patient a victory that will be appreciated by his patient, and he will congratulate himself on having succeeded.

As to the name of this disease. It was Dr. Rehwinkle, of Ohio, who first proposed the name of pyorrhea alveolaris at a meeting of the American Dental Association in the city of Chicago in 1877, and the name does not imply, as the essayist stated, that it was a special form of disease; it simply means pus flowing from the alveolar processes without designating what the cause of the flow is or what the nature of it is. Now, in his report on the Cuban campaign, Prof. Senn describes this disease most graphically. He states that it was most prevalent and was the cause of as much discomfort as any other disease known to the soldiers at that time, and he calls it alveolitis, a name which seems to me to be sufficient. When we say a man has meningitis or inflammation of the brain, it is not necessary that we state just how far that inflammation has gone. We may say that a man has osteomyelitis; it may go on to suppuration or it may not. Now, we have here a case of inflammation of the alveolar process, the alveoli and what not, an inflammation possibly running into suppuration. Possibly by employing means at our command we may be able to arrest this inflammation and restore the parts to a normal condition. Why should we not use a simple name that covers it all, without attempting to formulate anything to enable us to trace the disease from its inception to the end? The term alveolitis is sufficient. We may qualify it if we please. We may state that we have an alveolitis that has gone on to suppuration, or more fortunately that it has terminated by local treatment and the inflammation has been arrested. We may state that the alveolitis has resulted in complete or partial absorption of the alveolus. And we cannot by any possible means, it seems to me, from the thought I have given to this matter, devise a name that will cover the condition that we are attempting to discuss better than the word alveolitis.

Dr. A. H. Peck (closing discussion): It is unnecessary that I occupy further time in this discussion. It was not my purpose to present a "scientific" paper, as referred to by Dr. Rohland, only a concise résumé of the literature and the leading ideas of various authors on this much mooted subject, together with what I consider the common sense exposition of the cause or causes of the various manifestations of this so-called disease. A detailed account of treatment, etc., was purposely left for the discussion.

Discussion on paper, "Habits Incident to the Dental Profession," by G. W. Entsminger, D. D. S., of Carbondale.

Dr. C. N. Johnson, of Chicago (opening discussion): The essayist has opened up a new subject, and has dealt with it so logically that I beg the privilege of discussing the subject rather than the paper. But there is one thing that I do want to refer to. When the essayist made the remark that it was a habit that men had of attending dental societies, I am inclined to take the other view. I believe it is more of a habit that keeps men away from societies; I believe it is an impulse that sends men to the societies and a habit that keeps them away. As I read this paper and thought over the subject it seemed to me that one of the worst habits we had in the profession was the habit of carelessness. I believe the dental profession generally grow to be careless in many respects. They are careless in their operations, careless in their business methods, careless in the rendering of accounts and the keeping of accounts, in the keeping of records, and that carelessness finally creeps down until it enters the practice itself. And so, I believe, that that is one of the worst habits the dental profession has. Then there is the routine, or the rut habit, the habit of drifting along in a given rut or groove and not creeping out of it. I would rather see a man have a fad occasionally. The essayist has criticised fads, and properly, but I would rather see a man have a fad occasionally; I would rather see a man buy everything new that comes out than to not buy anything new that comes out. So that while the one extreme is objectionable, the other is also. And then there is another habit in the profession, the habit of disparaging one's fellow-practitioners. That grows to be a habit. I think men enter the dental profession with a laudable and broad aim, but, as I have said before, and I repeat it, we are working upon the small things, and we get narrow-minded unless we are very careful, and that narrow-mindedness leads us into the habit, occasionally, of disparaging our fellow-practitioner. It does not require an open criticism to disparage a fellow-practitioner; it can be done in many ways; and that is a bad habit. Now, as to the question of the moral habits of the dental profession. The essayist made the assertion that the dental profession probably was not using as much tobacco as it did in the past. I want to correct that. I have been associated with the society a great many years, and I have known men in the society, and one especially, who has always seemed to be an example in that regard. But, do you know, last night I saw Dr. Crouse smoking a cigar for the first time. The essayist has not been associated with these men as I have, and I want to tell him that the tendency is going the other way. From this out the consumption of tobacco in this society is going to increase; I know it. But speaking of moral habits in general, I do want to say that I believe the dental profession is as good morally, and probably better, than any other profession. I do not think we are a lot of saints, by any means; but I have associated with the dental profession a great deal and I tell you that I have never seen a body of men who morally were higher than the dental profession. But the most favorable habit we have at all is the work habit, and I think, after all, that the work habit is the best one that can get hold of any man, in dentistry or any other profession. And this age is an age of work. The habit of work with some of us gets to be so great that we can never be content unless we are at work. It grows to be a habit with us, and that one habit of close application and hard work is the saving grace of the future of dentistry.

Dr. C. R. Taylor, of Streator: I want to agree with the essayist rather than with the person who opened the discussion with regard to the attendance upon the State society as a habit. Now, about this time every year I get a kind of a tired, languid, indifferent sort of a spirit, and I expect am rather cross when I go home, and my wife always says, "When that tired feeling comes on you want to take a little Illinois State Dental Society meeting." And I always come and always go back feeling a good deal better. That is a habit that we ought to cultivate. Now, there is one thing, the habit of separating. I want to say that I have used separators a good many years, and I cannot remember any particular time when I have caused the destruction of the tissue that the doctor speaks of, the death of the pulp. It is not my experience, and I know I separate teeth, and separate them heroically, too.

Now, personal habits. I had a lady in my office who lives in Iowa, and it has been quite a question with me whether she was making me a compliment or not. She brought her little girl into my office (she had done so for several years). The last time she was in she said she did not like to take her children or go herself to her own dentist in Iowa because of a personal habit. It has been a question in my mind whether she was giving me a hint or not. She said every time he used his pliers to wipe out a cavity or anything of that kind, he would come this kind of a motion—try to clean off the pliers by the same motion of striking a match on the hip (illustrating). Now, is that your habit? Do you know any fellow that does that? We get so in the habit of doing those little things that we do not notice them. Patients do, and sometimes those very little things so disgust them that while they may know that you are all right as a dentist, those little habits may drive them right away from you. Now, it is a pretty good thing to be in the habit of thinking about your habits. Now, I believe that dentists generally are pretty careful about their engagements, and yet I know some dentists who are not careful about their engagements. They hate very much to be put out by their patients, but they are not always careful about keeping their engagements with the patients. I would say to the young man, get into the habit of being prompt in your engagements and fulfill them to the letter, and never allow anything to interfere with your business engagements. Dr. Johnson spoke about the profession as a whole as being careless about the habit of being good collectors. There is nothing that so helps you to succeed in your business as to be prompt in sending out statements and letting people know that they owe you, and be sure and get your collections. Send out statements at least twice a year; that is, in the country. I know some of you in the city do it every other day; you have to. (Laughter.) I can appreciate that in the country, where we have cord wood and lettuce and radishes sent in on account, we do not have to do that, but do so at least twice a year, anyhow.

Dr. G. V. Black, of Chicago: I would like to say a word in regard to the habit of using separators. I do not feel like letting so important a matter as this pass without something of a protest. The idea that the use of separators is dangerous to the life of the pulp is the idea that I would criticise. I have used separators ever since we have had them. I should not say I use separators heroically. I do not see any necessity for using them heroically, except perhaps in a few cases where the teeth are very difficult to move; then we may put on considerable force, and the more difficult the teeth are to move the less danger there is of injury. About the only place we will be in danger of doing injury at all will be in the single rooted teeth in the front of the mouth, and particularly in young persons. I have been so placed that I see a great many separators put on, and by persons inexperienced, and in a few cases I have seen some injury. I do not remember a single case where a pulp has been destroyed, but I have seen a number of cases where the teeth were separated more than necessary. As we prepare cavities nowadays we do not need much separation; the only need for separation, usually, is the need of room for finishing the filling, separation not being required for the purpose of putting in the filling, usually. Now this separation is done so easily, both to patient and operator, if done with proper care, and the results are so satisfactory, that it seems to me for anyone to fail to use the separator, the Perry or the Universal that has been passed around here to-day, is inexcusable. This class of separators I think should be used habitually, as a habit, by every operator until we get something that is better. In regard to the other separator that was mentioned, I certainly should think the danger of doing injury infinitely greater because it is practically impossible to protect the soft tissues or gums from injury with the instrument; there is nothing to prevent it slipping onto and injuring the tissues in the interproximate space. That is one of the important features relating to the separation of teeth, one which, as we used to separate teeth with wooden wedges, etc., was not guarded against. My own impression is that the injury done ten, fifteen, twenty years ago in separating teeth was infinitely greater than the injury that is being done to-day, our new appliances being so much better in that respect that we do not do the injury, are not in danger of doing the injury that was formerly done. I want to say, however, that care and caution is necessary in using any separator; in fact, care and caution should be constantly with us in all our operations, but in the use of separators special study of the application of the instrument is a necessity. With any of them it is possible to do injury and every operator should be on his guard. But we must remember the case of the boy who was advised that he should learn to swim but he should never go near the water. Now, I will leave the last part out. We should separate our teeth. Never use the separators? Yes, we should use the separators; we should go near the water and know just what this means.

Dr. J. G. Reid, of Chicago: It does not occur to me that attending dental societies is a habit. I shall be compelled to take issue with the essayist and express my own views as to why I attend a dental society. I am a regular attendant upon societies of which I am a member; a very regular attendant. I go to a dental society from the extreme curiosity I have of wanting to find out something that I would not find out if I staid at home. There might be something presented very valuable that I would miss by being absent from a dental society. I do not go to a dental society because it is a habit; I go because I may see something or find out something from somebody that will be useful to me as a practitioner of dentistry. There is no habit about it.

Now, the question of tobacco. It depends altogether on what kind of tobacco you use. If a man uses good tobacco and uses it as he should, I personally have found it a very nice habit. (Laughter.) But I want to have reasonably good tobacco. Now, it is the vile, filthy tobacco that people use that is objectionable. And there are lots of them who buy cheap cigars, two-for-a-nickel, five cents a hundred. That is the kind of tobacco that is objectionable; it is vile; I will admit it myself. I never will frown down the use of tobacco. I can suck more comfort out of a good cigar than any other man in the world, and I intend to continue to smoke as long as I live.

There is another phase of this question that has not been touched upon, and that is the habit of taking an occasional rest from business cares. Men generally say they are too busy to go to a dental society; they do not have the time; they have too much business; they cannot afford to go to the show; they are too busy. They cannot afford to go fishing; they are too busy. They cannot afford to go shooting; they are too busy. Now, gentlemen, a man who practices dentistry and expects to practice dentistry a number of years must adopt plans of that kind to prolong his life and usefulness in the practice of dentistry. When I get tired (and I get tired very frequently), I go out with my gun and walk in the mud and marshes and try to shoot some birds. I do not always hit them, but the satisfaction of looking for them and missing them is a whole lot of fun to me, and I get a whole lot of real good blood into me. I get burned out as it were. Gentlemen, I tell you as a profession we do not take the outdoor exercise we ought to. This should be a habit; it is a question of hygiene and health. We find men in the practice of dentistry who have been practicing dentistry sixty or seventy-five years and are practicing dentistry to-day. They are men, I will venture to say, who have always through their lives reasonably taken the proper exercise and gotten away from their offices. You are all better men after you go away from this society from the fact that you have been away from your offices. Men who attend this society and go back to their respective offices and go to work, feel better, do better work and in every way they are physically better. I shut up my office at twelve o'clock on Saturday. Now, most men keep to their offices until six and seven o'clock at night; too busy; cannot get away. I used to think that way myself until two years ago, and I swore off on that sort of business and concluded that I would close my office at twelve o'clock on Saturdays. I used to do it through the summer, but two years ago I made up my mind that if I could do it in the summer I could do it in the winter. And, gentlemen, I think it is of inestimable value to get out and get away from your office, and I feel that when Saturday noon comes it is the most pleasant day of the whole week and I look forward to it with pleasure.

Dr. Edmund Noyes: I agree most heartily with all that Dr. Reid has said, although I am myself a little too close and hard a worker, in respect to continuity and hours. But if we realize, as we should, what he has said, what is to become of the men who work, not only Saturday afternoons, but evenings and Sundays?

Dr. J. G. Reid: The Sunday business is a thing that I had on my mind when I was on my feet; I was going to speak about that myself. Now, a Sunday business is of no earthly good to anyone. It is not worth a cent to you, only just for the time being, and eventually when you want to break away from Sunday business, those Sunday people are looking for the other man who works on Sunday. I have no desire to be in my office on Sunday, consequently I am never there on that day. Not because there is any religious sentiment about it, but because I do not want to work on Sunday; I want the rest. I have had an experience, and I presume every man in this room has had more or less experience, with a Sunday business. The Sunday business gets to be awfully monotonous after a time. I wish to frown down the Sunday business, might and main.

Dr. Edmund Noyes, of Chicago: I think another word ought to be said on this question. I am sorry that Dr. Reid thought it necessary to disclaim any religious motives in avoiding Sunday work, but that I will not talk about. The important thing that I want to say is that these men, mostly young men, who are doing so much Sunday work, are establishing and encouraging a very injurious sentiment in the public in regard to that matter. One young man who comes to my son said to him not long ago that every man except himself in the bank where he is employed gets his dental work done on Sunday, and said so by way of explaining the difficulty which he had in being allowed to take the time. Now, if our young men will foster that habit they can soon bring about a condition of affairs in which the heads of business houses will, with greater and greater reluctance, allow time to have dental work done, and it is not necessary that dental work should be on that basis. It is just as easy for the dental profession, if we are even moderately and reasonably agreed upon it, to stand upon the position that dental work is on a level with medical services, and when needed must be attended to for the same reason that a sick man must have a doctor. I wish very much that our young men would realize the importance of discouraging this custom of Sunday work and the danger that will come from its encouragement.

Dr. GEO. D. SITHERWOOD, of Bloomington: I only wish to say a very few words on this subject, and first I want to emphasize what has been said with reference to attending dental societies. I cannot quite follow that it is altogether a habit. I look upon it as a duty. A long time ago the great Lawgiver gave the duty of man to God and duty to his fellowmen, and it stands in hand that it is our duty to ourselves and duty to our patients that brings us to a society. Again and again after attending the society I have returned to my office and had men come in and offer to sell me some instrument for $5 or $10 that I knew to be worthless, or it was something that I already knew from seeing it at the dental meeting. After a while I admit that it becomes a habit, but it certainly is a duty that we all owe, first to ourselves and second to our patients, that we may do the very best we can for them. You all know, doubtless, that this is a cardinal principle of Governor Roosevelt, of New York, and that he promoted men in the army, that not only performed their duty, but a little more.

One other thing that Dr. Reid and Dr. Noyes mentioned, and that is the habit of working on Sunday. About a year ago I was purchasing a book in a bookstore in Chicago. I incidentally mentioned to the lady clerk that I was a dentist. "Ah," she said, "that reminds me that I will have to look up a new dentist; the dentist that I have always patronized is dead; I went up there on

Sunday to have my teeth filled." "Well," I said, "my dear young lady, you will never have me fill your teeth on Sunday. I don't propose that any young lady or old lady or anybody else shall kill me off by working on Sunday." I enjoy reasonably good health. I don't smoke either good or bad cigars. I do not object to Dr. Crouse, after his long and arduous duties in the Protective Association, if he wishes to enjoy a good cigar it is none of my business; I think he has a right to it. But I do want to emphasize this one thing among young men (of course, I put it upon religion as well as duty and of morality, good health, everything): God intended that we should only work six days. I can do more work in six days in a week, or five days and a half, than any man can possibly do by working seven days in the week during the year. I have a tent and an outfit and I take my outing every summer (you might know that by looking at me); in fact, I regret to go back again and live in the house after tenting three or four weeks.

Now, just one other office habit. I have one habit in my office that appears to give more pleasure to my patients than all others combined. One of the pernicious habits, one that I am forever against, is the dental supplymen selling you a little slice of rubber dam in a box. I have for ten years purchased rubber dam by the pound from the manufacturer, and I keep a large piece in the drawer, and a good large pair of shears, and I cut off a new piece for every patient, and somehow they like that habit.

Dr. J. W. Cormany, of Mt. Carroll: A friend over here said to me, "Why do you not get up and talk; you are a good talker." I said, "Thank you." I used to have the habit of smoking. I smoked for forty years, and when Dr. Johnson said he thought the habit was growing in the society, I want to say that if we have one who commenced smoking we also have one who quit.

There was one thing mentioned in the paper, and that was that we get in the habit of destroying the pulps of teeth when it is not necessary. I have taken the ground for a good many years that if the tooth has ever ached the pulp deserves to be killed right on the spot. I have heard other dentists say that when a pulp was in the road they destroyed it and removed it. I have a tooth in my mouth that I had a bridge suspended to for ten years. The pulp was removed and it was treated for seven months and the root was filled with cotton. I wore that for five years; then that root was treated again and Dr. Taggart banded it and swung a bridge to it and it is still there.

As far as the separators are concerned, I go pretty shy on those, not that I have had any bad luck with them, but I do not like them. And as far as the morals of dentists are concerned, I think Dr. Johnson sees the cream here, and he is in the habit of associating with the cream of the dentists. I know of my own personal knowledge of a dentist who bought a saloon in a town not long ago, and had another man run it. You need not tell me that smoking or drinking or anything of that kind brings a fellow any business, if you are in a community who believe in patronizing a dentist who is a gentleman. Of course, I live in a community where they patronize me all right.

Dr. J. N. Crouse, of Chicago: People go to dentists for the very best possible service, so cultivate the habit of studying what is best for your patient and how to arrive at it. Think what you would do if it were for yourself or your family, and say, "If this were my case what would I like to have this dentist do? I should like to have him wash his hands and put himself in condition before he comes near me." Too many practitioners pick up the handpiece, rush for a bur and start work before they really know what the operation is. There is such a great variety of service required that I do not wonder the community are skeptical about choosing a dentist.

In regard to separators, I cannot remember that I ever injured a case with one. I like plenty of space so as to see on all sides of the cavity and to put the plugger where it should go. Most of my failures in fillings have been where I sympathized too much with the patients and allowed them to persuade me not to force the teeth apart any further; but they should be separated far enough that we can see how far disintegration has gone.

Most patients do not keep their teeth well brushed and clean. If I find a mouth in this condition I take the mirror and a little peroxide of hydrogen and show the patient where the brush has not reached. It is a difficult thing to thoroughly cleanse the teeth, and I believe that after all the men in this room have brushed their teeth to the best of their ability, nine out of every ten mouths will not be clean. If dentists do not brush their teeth properly, what can we expect of patients?

Dr. W. A. Stevens, of Chicago: I want to speak of separation. I am sort of an enemy to this matter of separation. Yet, at the same time, I want to say if you only use a little common sense in separating teeth or do your separating carefully, you will have the teeth in a position so as not to destroy the pulps. I cannot see any sense in producing a large separation, and I think the majority of the profession must learn, as I heard expressed several years ago, they would learn to work from a smaller space than they did when they first began. There is no necessity for crowding a tooth twice its width for the sake of looking up into it. And then I think that Dr. Shepard said in his article several years ago that if you will work from a glass you will see those things just as well as with the eye. I think he is correct. I must say that most of my operations I do from the glass. I work with the glass in the mouth constantly and I stand straight at the chair. I do not turn myself into a hook, because I could not if I tried to.

Now as to the Sunday question; there has been a good deal said about that. Now, I heard a man preach a sermon once and I think he is correct. He said God did not make Sunday for man but man was made for Sunday; i. e., man was made to rest, and there is an illustration which I could give you of rest on Sunday but which would take too long a time, in relation to a company traveling who observed Sunday as a day of rest, who went to California in 1853 or 1854. I, like Dr. Crouse, have my office in my house and I have to relieve other doctor's patients occasionally on Sunday. Now there is one fact about Sunday work; I do not think a man makes a dollar by working on Sunday. But I do think it is a piece of inhumanity if a man is in pain and misery and he comes to you on Sunday and you refuse to relieve him. And therefore, I have always made it a rule to relieve patients who come to me on Sunday, excepting once. A little boy came into my office one Sunday morning and he said his tooth ached. He said the tooth had been filled at a certain dental parlor. I refused to do anything for the patient and told him to go and find the man who did it. He said he could not find him. Well now, for humanity's sake and for the sake of the boy, I told him I would relieve him of his suffering. I told him to get into the chair and I also told him that it was going to hurt; he said if it was going to hurt he would not have it done. The result was that he got out of the chair and went out. His sister, on leaving, said his father would be back in ten minutes. In fifteen minutes his father was back there with him. Well, I scratched my head; I thought I had gotten rid of a bad job, if it was on Sunday. Well, his father came in and I said to him that I would not touch the case if he could get at the man who did it. He said he worked at the place where the work was done. I told him I did not care who he worked for, that a man was an infernal fraud who would do business of this kind. The boy got into the chair, I removed the filling and the pain was relieved. They had not removed the food that collected in the cavity before placing the filling.

Dr. E. K. Blair, of Waverly: I simply want to make this statement: For ten or twelve years past I have been using the Perry separator. My experiences in the use of separators, i. e., cotton and rubber and all other appliances than the Perry, have led me to think that I may expect my patients with an inflamed peridental membrane, if I have applied the separator several days before, unless I go through the long, tedious work of first separating the teeth and then allowing them to remain with gutta-percha between them sufficiently long for the inflammation to subside. Finding that the case, I drifted into the use of the Perry, because the immediate application of the separator furnished a tooth free from sensitiveness, so far as the use of the mallet is concerned. The application of the mallet to the plugger does not create any response from the patient and you have a comfortable patient. I may be wrong, but if I am, I am so after practicing the use of the separator for a long time. I say to my patients, "I can carry this operation through for you without pain if I use this instrument," and I go along with that idea in mind. As to the destruction of pulps by the use of the Perry separator. I think that is simply beyond question now; we have used it long enough to know that that is not true. So many people, it seems to me, apply the separator too rapidly. I say to the patient, "Put your finger nail between your teeth and you will feel a wedging process, and that is what you will feel when I put the separator on." If I have two cavities, I apply the separator and gain enough space to insert the first filling and make the contact point; then I turn up the bars and this gives me room to fill the second cavity. When the second filling is complete I turn the bars gently again, producing ample space in which to polish the last filling. There is less resistance if you make one, two or three turns of the bars. And so if you will make one, two or three efforts to separate the teeth you have less pain, and in the end when you remove your separator whatever soreness may be will occur after the operation is finished. And if you will follow what Dr. Black did in my mouth, a little bit of massage to restore the circulation, there is scarcely any inflammation that follows. Do not for a moment imagine that the Perry separator is not a good instrument for your office.

Dr. Ira B. Crissman, of Chicago: I simply want to say one word, and that is in regard to the personal appearance of the dentist; and one thing is his hands. I am actually ashamed to look at some dentists' hands. Now, you take the majority of dentists—we meet the very best of dentists here—but you come in contact with the general practitioner, and actually they are a disgrace to humanity. I am a great believer in taking good care of your hands and having someone manicure your nails; it is money well spent. But you have looked at dentists and the cuticle of the nails has grown way up, and they do not even clean them, and they go into the mouth filled with dirt, and then they wonder why they have not any practice.

I want to say just one thing about smoking. I never smoke in the daytime; I never smoke during office hours. I would not allow a dentist to fill my teeth who had been smoking. I know a dentist who says he just washes his mouth out with a little listerine and it is all right. He wears false teeth, and his own false teeth are so filled with nicotine that he cannot get it out; and he wears a mustache. He cannot tell me that he can smoke sweet-scented cigars and then go to his patients and have them well pleased. You have no idea how you can carry odor on the ends of your fingers. All I say is this, that you want to be careful, because the patients will pick it up. And there are a great many other habits that a man may have that would be objectionable.

Dr. Geo. D. Sitherwood, of Bloomington: I would like to correct Dr. Crouse in his statement. What I said about working on Sunday was in regard to the regular habit of filling teeth and doing regular dental work on Sunday, not relieving pain—that is the exception. We all help the cattle out of the ditch on Sunday and also relieve pain. I was talking about regular work on

Sunday by appointment. We all act as surgeons or physicians on Sunday to relieve pain.

Dr. J. G. Reid, of Chicago: I want my office away from my home six miles, and then I do not have those lazy people running around me on Sunday to have the toothache stopped.

Dr. Entsminger (closing discussion): The brickbats came and I was not the only fellow that was hit. I do not want to take up any more of your valuable time in this discussion, but I am glad that there have been a few points brought out which I think will be of help to all of us. I think we have all learned to use the separator. It has been my misfortune to follow a man who used the Perry separator and I believe that he injured a great many teeth, because the patients have said, when Dr. So-and-So wedged my teeth apart with an instrument they hurt from the time it was put on until it was taken off. Of course, Dr. Black has told us how to use them; Dr. Blair has told us how to use them. I think I said in my paper that in the majority of cases the separator was all right, but in a few cases I think there has been injury done. Dr. Blair said that there had been inflammation after he had used the separator, but that he did not think it caused death of the pulps. Well now, I do not know whether he is so sure of that or not; I am not so sure of it. But, as I have said, my observations have been taken since following a man who used the Perry separator to a very great extent. Much trouble followed and my conclusions were that the trouble was from the free use of the instrument.

In regard to these other habits that have been spoken of; it is not necessary to go over them again, and if I have presented a subject that has given any help to anyone I am glad for the effort that has been put forth. I thank you.

Discussion on papers, "Operative Dentistry," by Drs. D. M. Cattell and Edmund Noyes, of Chicago.

Dr. G. V. Black, of Chicago (opening discussion): In a discussion of this kind it is difficult to know where one is to begin and where one is to end. There is no subject so closely related to the life of the dentist as the preservation of the natural teeth; it constitutes his life, the effort of his being. I did not know until within a day or two, the nature of the papers that would be presented upon this subject; I was simply informed that I was to open the discussion upon the papers; but a day or two ago I saw a part of one of the papers, and since I have been here I have seen the other paper and the balance of the paper that has just been read.

Perhaps I should not attempt to discuss these papers, but rather to follow in the discussion of the subject which they present. The papers, for the most part, deal with the technical procedures in filling teeth. I may say that it seems difficult for the dentist or the dental student to pass beyond, and see beyond, the technical procedures in his daily operations. And if I would do anything this evening before this society, I would prefer to appeal to you to direct your thought on, and beyond, also to the time previous to the requirement of these operations. Why do you operate and what do you propose to accomplish by your operations? Or, in other words, to study more closely and more carefully caries of the teeth, its modes of attack, its nature, its causes, and all of this, not only in the abstract, but practically as you see it in the mouth; as you see it attacking here, as you see it attacking there; the conditions of these attacks of caries, the conditions under which this melting down of the teeth occurs, the conditions of the material, the teeth themselves. If we can understand this—and it is pretty closely understood to-day—we will do better in the operations, we will adapt the operations we perform better to the arrest and prevention of future decay than if we do not study these processes closely and carefully.

Now it may be said that our ideas of decay have been rapidly changing; the causes to which we attributed decay in my younger days have been more or less changed by recent discoveries. How do we know but that these will be changed in the future? Now gentlemen, let me say that this is not correct. The facts, or the notions, if you please, which Robertson promulgated in 1835, are just as much facts to-day as when he wrote them; i. e., that decay is caused by fermentation or decomposition occurring at the very spot where that decay occurs. The facts discovered have only served to explain and make more clear and add to the facts of that time. It is only the mistaken theories, the waste products of thought, if you please, that pass away, not the truths. That which we have of truth to-day will live. Other facts will be added that will explain and render us more certain in the future, and the man who would adapt his fillings to the saving of teeth to-day should study closely every fact in relation to caries of the teeth, every fact as to its mode of attack, every fact as to its history, structure of the material which is torn down and how it is torn down, structure by structure, in order that he may know better how to adapt his fillings to the saving of teeth. And when he has made himself master of these problems and master of the technical procedures which have been presented here this evening, he should study other conditions surrounding the teeth, the conditions that control the attacks of caries or that prevent the attacks of caries. First, we should study, as but few of us seem to have done, as yet, the surfaces of the teeth, the areas of liability to decay, the areas of immunity to decay. Now we all know full well that there are certain surfaces of the teeth which do not decay, that there are certain surfaces of the teeth upon which decay occurs, and that there are areas adjacent to these upon which caries never occur. Why? If we will study these with care as we go on from day to day in our offices filling teeth, we will find in that the reason for extension for prevention. And if you would apply extension for prevention wisely and skillfully you must do so by a study of the conditions surrounding these immune areas of tooth surface, by a study of the conditions of the liability to decay of tooth surface, and adapt your operations to the conditions found. Indeed, this was intended as the meaning of extension for prevention. No one can apply extension for prevention wisely without this kind of a study of the conditions of tooth surfaces, those conditions that give liability and those conditions of other portions of the surface which give immunity to decay. It is found that the areas that are liable to decay are unclean areas. This is a condition, a condition giving opportunity for fermentation, and they differ with different portions of the teeth and in different mouths; they differ in different forms of teeth, and these are to be studied and studied with care in order to apply these technical procedures wisely. Then, again, decay is not the same at all times with the same person, at different times of life. We find, as a matter of fact, that the most susceptible time of life is in childhood, and often there comes changing conditions, the condition of immunity and the condition of susceptibility to decay. In every community persons will be found who have gone through a long life with no decay of the teeth whatever, while their neighbors and friends about them have suffered from decay. Now this question of immunity and susceptibility is a question which should come in for close and careful consideration in the adaptation of our technical methods. If we are operating for a child we should know that that child is likely to become immune after a time; although the susceptibility may be great, although the teeth may be decaying rapidly, if we can preserve the teeth for a certain length of time, immunity will come to aid us in the preservation of that child's teeth. We may know more of this if we will study the hereditary conditions in decay, study the history of the family of children under our care. Have their parents suffered from decay in their early days? Have they been successfully treated? Have they become immune? If so, you may expect that that child will become immune after a certain number of years and your labors will be lightened, immunity will assist you in preserving those teeth. These are points that you should study with great care if you would be successful practitioners. Then I may mention again the study of the condition of the patient, the study of the conditions under which you operate, the study of the use of the teeth by the patient. A patient comes to you, is wrought up by pain and is in a nervous condition; everything hurts; everything you do for them they flinch and tremble; they are in no condition for an operation; they are in no condition for a filling to be made. What is your duty? To study that case and that patient carefully; do such things as will relieve them from pain, as will relieve them for the present, from sensitiveness; let them recover; put them in a condition in which they can recover; let their sensitiveness pass away; or, in other words, gain conditions under which you can operate favorably, and then apply your technical procedures in filling these teeth, and not until then. I wish to appeal to every man here to make his conditions favorable for a long, careful operation and not undertake to operate upon teeth that are sensitive, upon patients that are flinchy, but to wait and work and gain conditions which will be favorable for an operation; then you may hope to make an operation that is mechanically perfect. No man can do a first-class operation with these very adverse conditions. By properly caring for his patients, by properly looking to conditions and bringing his patient into a condition of health; then they can sit and endure an operation; then the operator can do his work with pleasure to himself and with comfort to his patient, and when he has completed it he will be better satisfied, he will have made a better operation and his patient will thank him for his care. Let me warn you again against making operations for patients who come to you who have been by some disease of the teeth, or by some foolish habit, making ineffective use of their teeth in chewing food. A person who is not chewing his food with reasonable vigor will have sensitive peridental membranes; they will not bear well the use of force in preparing cavities; the dentine is more sensitive; they will not bear mallet force well; they will not bear any kind of operation well. The patient may come to you apparently in perfect physical condition, and yet you will find their teeth are very sensitive. You will inquire into it, perhaps make some experiment as to how much pressure they can put upon their teeth; you find that their peridental membranes are sensitive. What is the matter? They have not been using their teeth as they should in chewing food. This may occur from the fact that some sensitive cavity has prevented the patient from chewing food; or, again, it may occur from a mincing habit at table. Unfortunately, among the laity there is an idea, more or less extended, that it is not well to chew very hard food, that it may injure the teeth, and they avoid these things. When a patient complains that their beefsteak is particularly tough there is something wrong. With normal teeth, with normal health, the toughest beefsteak can be masticated without difficulty, and the notion that it cannot is an error that is doing immense harm. Anyone who cannot bite down with a force of 125 pounds on his molars is in an abnormal condition, and I have never seen a piece of beefsteak so tough that ninety pounds pressure would not crush it through without difficulty. And I have searched for the toughest meat that I could possibly find for the purpose of this trial, and I have seen persons chew the toughest meats, and I have done it myself without any difficulty whatever. That kind of exercise is the very exercise that a patient should have before having teeth filled. And if you can send that patient home (if they have cavities that have become sensitive, put temporary fillings in, if necessary), direct them to chew food that is difficult of mastication and work up to a condition in which their peridental membranes and their teeth will not be sensitive; then you can use your mallet; then you can use force in preparing cavities without great discomfort to your patient and do operations that you will be proud of in future years. And remember that this vigorous use of the teeth is one essential to the coming of immunity. Generally, those persons in whose teeth decay continues to recur after mature age are persons who are not using their teeth vigorously. Now if you will study these points and study them with care you will find as you go on with your studies that I am correct in this matter, or that this vigorous use of the teeth is essential to the coming of immunity. If in conjunction with this care and this direction to your patients you make operations that are technically perfect, or technically good, you will fail in very few cases. You will not have this continual round of refilling and refilling of the same teeth. Particularly I would urge that you make a restudy of these problems; it will do the best of us good to make a restudy of them. And those of you who may not have been following these subjects closely as they have been developing in recent years, it is a necessity that you make a restudy of them and their application to the subject in hand, to the patient in your chair.

Now, it is the thought of very many in the profession that the study of the theory of decay, the study of the modes of attack, the study of the histological characters of the tissues torn down in decay, are abstract studies; not practical studies in dentistry, but abstract foundational studies simply. Let me say, gentlemen, that this is an error; that the study of the histology of the teeth, the study of the form elements of the enamel, the study of the form elements of the dentine, and all of this, are the most practical studies in their application to the patients in our chair, to what we shall do to-day, to-morrow, next day, for these patients who trust to us. And I appeal to you to make a closer study of these problems, a closer study of the conditions surrounding the teeth, a closer study of the peridental membranes in the patients for whom you fill teeth, and especially a closer study of conditions that occur from a failure of sufficient use of the teeth. It seems to me that now is an opportune time to appeal to the dental profession for a closer study of all of these problems, not only of manipulative procedures generally, but of conditions surrounding the teeth manipulated upon; of their membranes; not only of their membranes, but the condition of the patient himself or herself, and the choosing of the time for operations that are favorable to making successful operations, the bringing of patients into condition in which successful operations can be made without too much worry to the patient and to the operator. These are things that I feel are neglected by large numbers of practitioners. Too many operations are undertaken under conditions under which operations cannot be well made. You are doing a wrong to yourself, you are doing a wrong to your patient who trusts you when you do this.

Now I simply make this appeal for a closer, more careful study of these conditions surrounding the operations you undertake, and also a closer study of manipulative procedures and the adaptation of these procedures to meet the conditions.

Dr. GEO. D. SITHERWOOD, of Bloomington: I have been greatly interested both in the papers and what Dr. Black has said. I have tried to study up and to keep up with the procession in the cutting of proper steps and extension for prevention, until as I look back now I think that even five years ago I did not know much about filling teeth either with gold or amalgam; I am not sure that I know very much about it yet. But with the extension for prevention comes something else, and that is the large display of gold, especially in the incisor teeth. Last year I attended the National Dental Association at Niagara Falls. I went there with one single idea prominent in my mind, and that was to see Dr. Jenkins, of Dresden, put in a porcelain inlay. Now I do not know much about operating with porcelain inlays, but I think there are some gentlemen present who do practice operative dentistry in that way. In my own practice, where there is a large display of gold, I finish the filling with about No. 3 platinized gold; it is not so yellow and approaches tooth color. But I would like to hear from some gentlemen on porcelain inlays, what success they have had.

Dr. C. N. JOHNSON, of Chicago: After the excellent papers that we have listened to, and the masterly appeal to the profession from Dr. Black, it seems almost superfluous to say anything more upon this subject; and yet, I may possibly emphasize some of the suggestions that have been made. I want to emphasize particularly what Dr. Black has said in regard to the study of conditions. We, as a profession, are more lax in this one relation than any other line of our work. We go on day after day performing technical operations upon the teeth without studying the conditions which surround the teeth or affect the operations. We have failures following our operations, and we do not study the causes of these failures. We go on repeating those operations in the same way, and I would emphasize what Dr. Black has said in regard to the study of conditions. I do not believe that a man is doing his duty to his profession, nor to his patients, when he allows any failure to come under his notice without studying the cause of that failure. We can learn more from our failures than we can from our successes, and should know why our fillings fail and why they do not.

Now Dr. Cattell in his paper mentioned one matter in regard to contact points. I have been studying that very closely recently, and I am more impressed than ever with the fact that we as a profession have not any adequate conception of what the contact point means. I was in a dental society a month or two ago, and I asked the different members of that society—and they were a thinking body of men—what they believed to be the average area of the point of contact, say between two molars, and the average reply that I got to that was, about two m. m. Now I venture the assertion that if this same question was asked of the majority of the dental profession in the United States we would get the same reply. The idea seems to be prevalent that the area is large. I read a paper on this subject some years ago before a dental society, and there was a gentleman present who knew more about comparative anatomy than I did, and, said he, " The assertion that the point of contact between bicuspids is narrow is correct, but " said he, " between molars it is a different problem, and the form of the proximate surface is such that the area of contact is broader between molars." Now I want to know if it is broader between molars normally? I have been trying to devise some means of study to find out how I could get at that matter of contact, and I want to mention just one little plan that I have that has given me a more perfect realization of what the actual point of contact between molars is than any other plan I have ever seen. Take two molars which, examining them from the proximal surface, would seem to have a broad proximal surface; take those two teeth and place them together in the same relation that they occupy in the mouth and hold them up between you and the sky so that you can see absolutely the area of contact. Place the buccal surface of those teeth toward you and hold them up to the light; the light is obscured only at the most minute point. Place them in the other relation, with the occlusal aspect toward you, and the point of contact is almost immeasurably small. I hope the members of this society will study that one matter in that relation. It is the most vivid object lesson that I have ever had in regard to the point of contact between teeth.

Dr. Noyes mentioned another point in his paper that appeals to me very forcibly, and appeals to me more and more as the years go along. He said that the result of teaching in the colleges in regard to improvement in operative procedures was spreading out and extending its influence in proportion to the earnestness with which those procedures are taught. I never go before a class but what that thing occurs to me. I do not believe any teacher ought to teach methods without being certain that they are as nearly modern as he can make them. If he teaches up to the very summit of his possibilities he will not accomplish any too much, but if he falls below that, he is not doing justice to his class. We do not study carefully enough the influence, the wide spreading influence that we exert in teaching these young men. We are not only influencing them, but are producing an effect that will spread away from even the men that we are teaching. We send them out and they operate upon the public at large, and the influence that we exert goes away beyond the young men that we are talking to. That matter appeals to me very strongly.

Now the other proposition that was mentioned by Dr. Noyes and followed out by Dr. Black in regard to the saving of the natural teeth. I make this assertion here, that I believe it to be possible for a dentist who has charge of the teeth of a patient from infancy to old age, and who manages those teeth properly, I care not what the susceptibility to decay may be in that particular mouth, if he has charge of that patient and has the coöperation of the patient he can save those teeth for a lifetime with absolute certainty, so far as caries of the teeth is concerned. There are sometimes many discouraging features about these cases, and as Dr. Black has said, decay is more rapid in youth than in after life. But if we take hold of these little patients that come to us even under the most discouraging conditions, take hold of the case vigorously and fight back that disease as we ought to do, we will finally get the mastery of it. I want to recite a case here in practice that has appealed to me very strongly, a case that was a bugbear to me for many years. A little girl was brought to me when her first permanent molars were just coming in. Her deciduous teeth were decayed badly. All of the conditions in that mouth seemed to be unfavorable. The first permanent molars began to decay the moment they came through the gum. Everything seemed to be going to rack in that mouth. The teeth began to decay the moment they got through the gum, and they were exceedingly sensitive. It was something of a dilemma to know what to do with her, but I kept encouraging her, doing temporary work because I had to; making those teeth as comfortable as I could, doing imperfect work on account of the necessities of the case, but sticking to it, instructing her to come to my office at least every two or three months. Sometimes she would come in before the time was up and say: "Doctor, I have another cavity," and she usually had. Gold was out of the question in that case. I had to use gutta-percha, cement, amalgam, but I kept fighting, and I fought for one thing as much as I did any other, to keep that girl's courage up. There were times when I was afraid to give her any pain for fear that she would never come back. It was the most discouraging case I ever had to manage, but I kept on at that for five or six years. An interval elapsed and the patient failed to come to my office for a year, and I came to the conclusion that she had given it up. One day she came in and said, "I have not had any trouble, but I think it is time my teeth were examined." I looked into her mouth and the feeling that came over me was something like the feeling that comes over a physician who has been treating a stubborn case of fever and finds his patient breaking out into perspiration. The difference in the condition of that mouth was at once apparent, and though I cannot describe it intelligently it was something that gave me an intimation at once that the victory was won. From that day, five years ago, the only thing that I have had to do in that mouth is simply to repair the imperfections of my own operations in the early days of her coming. Her molars are plastered up in every conceivable shape with the worst looking amalgam fillings you ever saw. I am not proud of any of them. The technical operations were not perfect; they were simply the best that could be done under the circumstances, and I am glad now that I did not go too far at the time and frighten her away. As it is now, I keep watch of her teeth and when a filling fails I am able to put in a gold filling. She can bear operations better now, the teeth are not so sensitive, the conditions have changed in that mouth, and so I can put in fillings that will be permanent. That is only an illustration. That case has become immune. But we may have a relapse in this disease as in other diseases. The conditions may change in that case and I may have another fight; a crop of cavities may come. But I want to tell you after studying this matter as I have I am not going to be afraid of another attack in that mouth. If an attack comes I shall go at it hammer and tongs and I shall win the battle again. That little girl has never had to have a tooth extracted yet, and she never will so long as she and I can see each other in a professional way, unless some accident occurs. Now in some of these cases we do have this occur; I do not know but in this case I have lost a pulp in one molar, but that is the utmost, and that was on account of illness of the patient which kept her away. We may even go so far as to lose the crown of a tooth, rendering it necessary to substitute an artificial one. But if you will take these cases in hand and watch your patient you may keep the full complement of teeth and keep them in full masticating service for a lifetime. I am not half so afraid of saving teeth from decay as from pyorrhea alveolaris. If I can keep the roots in good condition I can ordinarily attend to the crowns.

Dr. J. N. Crouse, of Chicago: Let me emphasize one or two points. When children come to you, don't go at them hammer and tongs and start to drill first thing, but get them quieted down in the chair and let them see that they are not going to be killed. It is a fad among people who visit a dentist to blackguard the operation, and as the question is discussed at home, the children of course come to us with fear and trembling. (I speak of children especially, because that is the starting place of reform.) This fear must first be eliminated, and when timid children present I let them examine all the instruments, make balloons with rubber dam, ride them up and down in the chair, and let them see that they are not going to be severely punished. It is better to have them come six or seven times before we perform any operation if you can thus coax out of them that unreasoning fear.

I always thought that women and girls were more honest than men and boys. A boy will shrink and jerk away when you know he is not being hurt, but a girl shows more bravery. If you catch the boy at his tricks he will soon be ashamed to jump when not hurt, and will like you all the better for seeing through his maneuvers.

You never saw a child that did not protest against a clamp, so I seldom use one but adopt another method. I take a little oil of eucalyptus, cleanse the surface of the tooth, and rub Black's 1-2-3 around the margins of the gums and clear out all the germs. I have a little flat, curved instrument, and after the floss silk has been adjusted I hold the dam down while my assistant mixes cement to be placed on the distal surface of say a first molar where there is a tooth back of it. In many cases where you would ordinarily use a cervical clamp, the same result can be attained with a little oxyphosphate, and you will be surprised to see how it sticks and holds the dam, and with much less pain to the patient.

Dr. C. N. Johnson, Chicago: How do you hold that right midway on the cavity, gingivally, supposing you have a labial cavity on an upper incisor?

Dr. Crouse: It is not so good there as on molars with buccal cavities. In all cases I merely hold the dam up with an instrument in my left hand while operating with the right, as I prefer that to the clamp. I believe in making your operation as comfortable as possible for the patient, and especially for children, so they don't dread coming—so that the boy does not go off somewhere else and lie to his parents because he hates to visit you.

As regards making teeth less sensitive to the mallet, I have often thought that use accomplished this. Many people who use only one side of the mouth have on the other side teeth that are more decayed and more sensitive. It is our duty to put the mouths in such condition that the food can be masticated, and this can be accomplished only by having all the proximate surfaces come in contact. Whenever you find a space between the teeth, from whatever cause, so that you can pick out particles of food, you may be sure of two things. First, that the patient does not chew on that part of the mouth with any comfort; and second, that cavities will follow this condition. Food that requires considerable mastication should always be our recommendation, but to enable the patient to take it we must put the mouth in comfortable condition.

As regards the patient's physical condition, when men or women, especially women, have been to the theater or party the night before, and have probably eaten considerable indigestible food and are not in fit shape for dental services the next morning, I generally dismiss them with the explanation that they ought not to have any work done until the physical tone is raised. This also applies to the operator, for he should always come to his chair fresh and in good physical condition. If he is not, the patient should be sent away until another time.

Concerning gold, I believe it is the general custom to use No. 3 or 4, but all the cohesive gold that I use is not less than No. 10 or 20, folded. It can be condensed with less force if you don't wrinkle it; for instance, one lap over the other with No. 10 folded four times or No. 20 folded twice. You can pack that kind of gold in big fillings with less heavy mallet pressure, and obtain a better condensed surface than where you use the blocks and the edges turn up so that you have to drive down the mass of gold.

Dr. F. H. McIntosh, of Bloomington: Speaking of cotton root filling, I would like to report a case in which I took out a cotton dressing about two months ago that I know had been in for over nineteen years, and it was in a perfectly aseptic condition.

Dr. J. N. Crouse, of Chicago: If we expect to make good amalgam fillings we must have four walls to pack against, and without them the best of amalgams will almost invariably fail. Furthermore, unless heavy force is used you will not have the best results. The place that baffles me in amalgam filling is the buccal cavity in molars, extending well around toward the proximate surface. A matrix must be used in contour cavities if you expect to pack amalgam with heavy force and to attain any degree of success. The failures with good amalgams are largely due to faulty manipulation.

Dr. Geo. D. Sitherwood, of Bloomington: I would just like to emphasize what Dr. Crouse said about the eyeglass. When I first began practicing, Dr. Atkinson recommended using a watchmaker's eyeglass. I learned to hold it without the spring.

Dr. Thos. L. Gilmer, of Chicago: There is but one thing I care to say on this subject, and that is in regard to system. I think there is a lack on the part of dentists, as a rule, to have a system for their work, and it amounts to a great deal. I have been asking the question quite frequently lately of dentists, "How do you examine teeth?" and I find that there are very few that have a system of any kind. It is just as necessary that we should examine teeth closely for decay as that the work be well done after the defects are found. Now, the system that I have for this work—and I imagine a good many others have a similar system—is to commence at a definite point on the jaw and go in a definite way around it, first on the lower, then on the upper. We also should have a definite system for all kinds of work. In the preparation of cavities we should know what should be done, then go about it in a systematic way, completing the first step before commencing the next. By this means we do the work with much less inconvenience to the patient, less fatigue for ourselves, and when the operation is completed it is of a higher grade than if done in a less systematic manner.

Dr. G. V. Black, of Chicago: I would like to say a word just now that does not relate to this subject, but with reference to contact points particularly. I am having mounted now as rapidly as possible my private collection of specimens touching upon this point, and will, within the next month or two, have a serial collection of a large number of cases of wear of the contact point. These will range from the slightest wear that we will notice with the naked eye up to great wear of the contact point. And this series will also illustrate the peculiar character of decay that occurs on account of wear of the contact point. I hope to have these in position in the museum at the school so that any members of the profession may study them and may study the influence of this wear of the contact point where decay begins on account of it, its peculiar character as it occurs, and the peculiar difficulties surrounding the treatment of this particular character of decay. One of the most difficult features that we have to deal with occurs from this wearing of the contact point. A few years ago Dr. Wedelstaedt made a great number of measurements of contact points, which he thought of publishing. I told him it was not worth while to publish them now; the profession would have to have a little further insight into this wear of contact points and its results before such a set of measurements would be of any use whatever.

I would like to say that I would like specimens of almost any character illustrating pathological conditions of the teeth. I propose to have this museum open to the whole profession and make it as complete as it can be made. I have received quite a good many specimens while I have been here, and I would like many more.

Dr. D. M. CATTELL, of Chicago (closing discussion): I have nothing to offer further than what has been said already.

Dr. EDMUND NOYES, of Chicago (closing discussion): I wish to detain you but a moment or two. Of course, this subject is never covered. One thing occurs to me in regard to what Dr. Johnson said about the smallness of the contact point or surface in the molars. It is modified sometimes in later life by wear, perhaps to a larger degree than we are apt to think. We have all seen teeth that were worn through the occlusal enamel down to the contact points, and have seen such teeth in which the contact reached almost from buccal to lingual, so that for two-thirds the distance from buccal to lingual, floss silk would not go through any part of that space without being flattened. And Dr. Black has said in one of his recent writings, I think, that he has found molar teeth in which the contact points had been worn through the enamel. Now these cases may require special treatment. I have never gone so far as to cut out cavities in such teeth when sound for the purpose of restoring the lost contour and reducing the contact *surfaces* to contact *points*. But I judge that this broadness of contact is sometimes the cause of disastrous decay underneath, which is occasionally seen in old people, and which possibly could be prevented if the danger or the beginnings of decay were discovered in time. Of course, in the cases where this wear occurs on all the teeth of a full denture, the whole arch has become contracted to the extent of the amount that has been worn away from the proximate surfaces of the teeth.

One word about root fillings. I do not know any material that is absolutely certain and satisfactory for the purpose. And we have all seen a great many root fillings that were not in good condition when we had occasion to look after them some years subsequent to the first filling. I have found very foul root canals that had been filled with oxychloride of zinc (which shrinks badly and is very difficult to carry to the ends of small canals). I have found very foul ones that have been filled with gutta-percha, and great numbers that were exceedingly foul which had been filled with cotton. And such a condition of things in roots that have been long filled is so common that I am prepared to follow the statement of one of our members, who said that he made it a rule, whenever by the loss of a filling or any other means an old root filling was open to him, to examine it carefully, unless he has made it himself. Now, if they have been in a great many years I think it is well to follow that plan without the exception. I usually examine them even if I have made them myself. I have found a great number that have been in from five to fifteen years that proved upon examination to be in good condition; I have found a sufficient number of foul ones to justify the examinations. Root filling is an operation in which we have not yet reached the desirable approach toward perfection.

IN SEARCH OF A DENTIST.

Having to remain for a day in Liverpool waiting for the steamer to leave, I thought to call upon some of the dentists. Starting out at 8 o'clock to look around the city I first went through many business streets, and saw but one sign, but the surroundings were such I did not venture in. Then I tramped through many residence or mixed residence and business streets and still without success. I went into a drug store and inquired. The proprietor said there was one near by, but I failed to find him. After walking a considerable distance and seeing no evidence of a dentist but a shop window filled with specimens and prices ranging from two shillings (25 cents) and upward per tooth, I again called upon a druggist in a good residence locality. He said he "pulled teeth." Told him I wanted to find a *dentist.* He said he knew of none anywhere within two miles. Went back to a business section where I had not been, and again called upon a druggist. He said on a certain street I would find several. I did so, found four offices, but the dentists had not yet come, as it was not time for them, and yet it was 10 o'clock. At last I found one in. He came forward and I handed him my card. He looked at it and said, "Well, what do you want?" I replied that I simply was making a friendly call. "Well, will you tell me just what you want of me?" I replied, "Nothing, but had *expected* to meet a gentleman," and left.

This was my experience in a city of 800,000 population. I wondered whether here was not a good opening for some of the surplus dentists of America now so rapidly accumulating. L. P. HASKELL.

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OPENING OF THE DENTAL SCHOOLS.

The close of the century finds well equipped dental schools all over the world—none better than those in the United States. The new dental hospital in London now nearing completion will be about the best example of a dental school in the old world when it is completed. As the new men are going to start with the new century we urge upon them the necessity for conservative, earnest labor and devotion to the principles of the profession they are about to embrace. Nothing stands a man in such good stead as a broad basal understanding of the elements of the structure he is to occupy. No half measure will be enough. While the brain is being educated the hands and the eye must be trained, and all of the senses that enter into the make-up of the modern dentist. These are golden moments, which if dawdled away, are never to be regained except at the expense of blood, nerve, muscle and other attributes of your personality. Go in to win the topmost round of the ladder.

THE DENTAL CONGRESS.

As we have only returned from Paris it is a little too early to say more than that the congress was a brilliant success both numerically and scientifically. The social features, as in all congresses, were paramount to everything else. It will be found that the 1,250 members read many excellent papers, performed numerous interesting clinics, and gave demonstrations in radiography, orthodontia, surgery, histology and bacteriology that will be of farreaching educational importance. The number of those present and the enthusiasm of the audiences was beyond anything we have seen in previous congresses.

All of the section meetings were well attended after things were got into running order. They do not quite get the hustling American idea of running things in the old world, but they did it well as they understand it, and we take off our hats to them in many things. The officers of the congress and of the sections were untiring in their attendance and in their desire to have things run without friction, and they succeeded admirably well. The chairmen who did the herculean labors were M. Godon, Dr. E. Sauvez and Viau. The honored E. Lecaudey, in spite of his many years, was present at nearly every function, and by his counsel and advice everything turned out well.

The entertainments of a private and public nature were simply superb and enjoyable to the last degree. The reception of M. Loubét was attended by nearly every one, and a thousand or more went to St. Germain en Laye. On the whole, we can exclaim to the next country which essays to hold a congress, surpass this if you can.

Books Received.

Notes on the Treatment of Irregularities in Position of the Teeth. By J. F. Colyer, L. R. C. P., M. R. C. S., L. D. S., Dental Surgeon to the Dental Hospital of London, etc. Published by the Dental Mfg. Co., Limited, Lexington Street, London (1900). Cloth. Price, $3.

MEMORANDA.

Dr. Kirk Davenport has returned to England.

Dr. J. K. Egbert, of Bangkok, Siam, was in Paris.

Dr. B. J. Cigrand has returned from a trip to Europe.

The next Medical Congress will be held in Madrid in 1903.

Dr. Geo. H. Chance, of Portland, Oregon, is in Chicago for a visit.

We saw one member of the profession from California at the congress.

The next congress will be held about 1906 either in England or Germany.

Dr. F. Aguilar, of Madrid, was one of the distinguished men at the congress.

Dr. Gordon White has returned to Nashville after two months spent abroad.

Dr. W. W. Walker has returned to New York after a three months' tour in Europe.

Drs. H. A. Smith, O. N. Heise and D. W. Clancey, of Cincinnati, attended the congress.

Drs. Wedelstaedt and Owre are in the United States after a protracted stay in Europe.

The familiar face of James Stewart, D. D. S., of The Hague, was seen by his friends at Paris.

Drs. Ames, Gilmer, Case, Cook, Hinkins, Good, Brophy and others have returned from Paris.

Dr. C. C. Corbett, of Edwardsville, Ill., has been appointed a member of the State Board of Examiners.

The Haskell school will be re-opened this fall (about November 1) under the supervision of Dr. G. A. Yant.

Dr. W. E. Harper succeeds the late Dr. Menges as secretary of the dental faculty of the N. W. U. Dental School.

In the absence of the editor, Dr. J. D. Patterson, of Kansas City, and Dr. Watts, of Berlin, paid our sanctum a visit.

All of the dental societies will begin their monthly meetings in September or October. Look out for new things from Paris.

Dr. P. Holme Morrison and Dr. Emma Eames Chase, of St. Louis, were the only representatives of the dental profession in Paris.

Dr. C. Edmund Kells, Jr., of New Orleans, La., visited Chicago in September and was one of the orators at the opening of the Odontographic Society.

The *Cosmopolitan Magazine* offered a prize of $200 for the best essay on the care of the teeth, which has just been awarded to Dr. Arthur DeVoe, of Seattle, Washington.

NORTHERN ILLINOIS DENTAL SOCIETY.

The above society will meet in Aurora October 24 and 25. A full meeting is expected.

E. J. PERRY,
Chairman Executive Committee.

HOW SAD WE ARE.

While away last month our "devil" got in the discussion on Drs. Moorehead's, Goslee's, Johnston's and Munroe's papers one month before we reached them, so, kind reader, turn to pages 623, 631–9 and 646, then read the discussions once more. How our head aches!

MINNESOTA STATE DENTAL ASSOCIATION.

The officers of the Minnesota State Dental Association for the coming year are as follows: President, Dr. F. H. Orton, St. Paul; Vice President, Dr. J. O. Wells, Minneapolis; Secretary, Dr. Geo. S. Todd, Lake City; Treasurer, Dr. H. M. Reid, Minneapolis; Chairman Executive Committee, A. Owre, Minneapolis; Master of Clinics, S. R. Holden, Duluth. Meeting to be held in Duluth next year.

NORTHERN IOWA DENTAL SOCIETY.

At a meeting of the Northern Iowa Dental Society, held at McGregor, Iowa, September 4–6, the following officers were elected for 1900–01: President, W. R. Clark, Clear Lake; Vice President, J. A. Walter, McGregor; Secretary, Wm. Finn, Cedar Rapids; Treasurer, H. W. Rizer, Lansing. Next meeting to be held at Lake Okoboji, the first week in September, 1901.

Yours truly,

William Finn, *Secretary.*

PLAGIARISM.

At the national meeting at Old Point Comfort, I called your attention to the fact that an article read before some Indiana society a short time ago, and printed on page 680 of the July *Indiana Dental Journal* as an original article, was IDENTICAL in substance and even language to an article of mine published in the *Items of Interest* of April, '97. I enclose a copy or reprint of the article to show you what it is. Very fraternally yours,

August 30, 1900. H. J. Goslee.

STATE BOARD OF DENTAL EXAMINERS.

To the Editor of The Dental Review.

Dear Sir:—Kindly announce in the next issue, that the next regular meeting of the State Board of Dental Examiners will be held in Chicago, October 5 and 6.

Those desiring to take the examination should notify the secretary ten days before date of meeting. Respectfully yours,

J. H. Smyser,

Secretary.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

Officers.—President, Dr. W. Mitchell, London; Vice President, Dr. S. S. MacFarlane, Frankfort-on-Main; Hon. Treasurer, Dr. L. J. Mitchell, London; Hon. Secretary, Dr. W. E. Royce, Tunbridge Wells.

Executive Committee.—Dr. L. J. Mitchell, Dr. E. Lawley-York, Dr. J. H. Spaulding, Dr. L. C. Bryan, Dr. W. S. Davenport, Dr. W. L. Croll.

Membership Committee.—Dr. C. J. Monk, Dr. G. Cunningham, Dr. W. L. Croll.

Ex-officio Members.—Dr. S. S. MacFarlane, Chairman; Dr. W. E. Royce, Hon. Secretary, 2 Lonsdale Gardens, Tunbridge Wells.

At the twenty-seventh annual meeting of the American Dental Society of Europe, held in Paris, upon August 7, 1900, the above named officers were elected for the ensuing year. Waldo E. Royce,

Hon. Secretary.

MANILA DENTAL SOCIETY.

Officers for 1900–1901: President, Frank R. Harkinson; Vice President, Juan Arevalo; Secretary, Lloyd R. Hawley, Freedom Building; Treasurer, R. L. Hale.

The society meets on the second Monday of each month (except July and August) at 8 P. M. Legal dental practitioners in the Philippine Islands are eligible to membership. Resident physicians and visiting dentists are always cordially welcome.

Program for 1900–1901: 1900. March 12.—Paper by Dr. Louis Ottofy: "Observations on the Practice of Dentistry in the Philippines." April 2.—General discussion. Incidents of office practice. May 14.—General discussion. Incidents of office practice. June 11.—Paper by Dr. W. G. Skidmore: "Dental Laws and Dental Legislation in the Philippines. September 10.—Paper by Dr. Lloyd R. Hawley: "Pyorrhea Alveolaris." October 8.—Paper by Dr. R. L. Hale: "Gold Filling." November 12.—Paper by Dr. E. B. Merchant: "Crown and Bridge Work." December 10.—Paper by Dr. Juan Arévalo: "History of Dentistry in the Philippines." 1901. January 14.—Paper by Dr. Anna M. Sawyer: "Amalgam Fillings." February 11.—Annual address by the President, Dr. Frank R. Harkinson. Annual meeting. Election of officers, reports, etc.

PATENTS OF INTEREST TO DENTISTS, RECENTLY GRANTED.

654,109. Dental articulator, Herman Backstrom, Montpelier, Idaho.

654,869. Dental engine, Frederick H. Berry, Milwaukee, Wis.

655,051. Fountain spittoon, Arthur W. Browne, New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa.

655,525. Making separable matrices for seamless tooth crowns, Samuel C. Snyder, Scranton, Pa.

655,640. Fountain spittoon, George H. Treadgold, Port Huron, Mich.

TRADE-MARKS.

34,914. Dentrifice, Charles Wright Chemical Co., Detroit, Mich.

LABELS.

7,716. "Arnica Tooth Powder" for tooth powder, Mesmin Chemical Co., Detroit, Mich.

7,717. "Arnica Tooth Paste" for tooth paste, Mesmin Chemical Co., Detroit, Mich.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall Building, Washington, D. C.

NOTES ABOUT THE CONGRESS.

There were only a few clinicians from the United States who did not present themselves and give their clinics.

Herbst was present and gave a clinic and exhibition nearly every day. He is a tremendous worker and exhibited many things useful to dentists, most of which are on sale or soon will be.

Among the numerous good things shown at the clinics not the least interesting was that of Dr. W. S. Davenport, of Paris, who exhibited models of a method of removable bridge work, and he also made a practical case to decide the value of the method. This will soon be illustrated.

One of the extremely interesting illustrated papers read before the congress was that of Dr. Weston A. Price, of Cleveland, Ohio, on "Radiography." This paper showed most conclusively by word and picture the value of radiography in diagnosis, and also when the parts were restored to health.

One cannot fail to be impressed by the serious earnestness of our French confreres in their desire to do good work, in the science as well as in the art of dental surgery. The work of Cl. Martin, Choquet, Michaels, Bonnard and others is of a class by itself; while Sebileau stands alone in his work on palatal defects.

The American Dental Society of Europe with the clans was assembled in full force at Paris. What we remember best is the grand dinner which was given to about one hundred and fifty at the Hotel Moderne, Dr. Daboll, the president, presiding. There were no set speeches, but a good many were made during the evening, which all regretted had finally to come to an end.

South America was represented by five or six, and Mexico by two, while Hawaii was represented by the venerable J. M. Whitney and son. France, Germany, Russia and Italy had a goodly number, but it was reserved for Spain, Great Britain and the United States to break the record in attendance. Austria, Sweden, Norway, Denmark, Switzerland, Belgium and Holland had their quota, and I believe Hungary was represented by two or three. We noted not a single Japanese or Chinaman present. Australia, Finland, Canada, Africa and Asia were all represented by one or more.

On the opening day the large Hall of the Palace of Congresses was well filled by about 1,200 persons, not all members of the congress. Many ladies were present. The ceremonies were most impressive. Grouped on the platform were the honorary president, Dr. E. Lecaudey, and M. Chas. Godon, the active and energetic real president. The vice presidents and the secretary-general, Dr. E. Sauvez, and the treasurer, G. Viau. Back of these were the representatives of governments and the heads of national committees. As the hour arrived Prof. Garriel, the representative of the French government, sounded the gavel, and in a few words welcomed the members as it had been his pleasure to do in 1889 at the opening of the first congress. The secretary-general and the treasurer then read their reports, and the president then read his address (a portion of which we will reproduce). The heads of national committees, as they were called in alphabetical order, responded for their respective countries, and the session was closed by some further remarks by Prof. Garriel, who became enthusiastic in his peroration and predicted a glorious success for the congress, both as to numbers and the work that would be done. The meeting closed with great applause.

AT THE DENTAL CONGRESS IN PARIS, 1900.

The following is nearly a complete list of those present in Paris. A few of the names are those who sent their dues and were not actually in Paris.

W. V-B. Ames, Chicago; I. N. Broomell, Philadelphia; J. F. McCrea, Minneapolis; J. Fremont Burket, Kingman, Kan.; D. W. Clancey, Cincinnati, Ohio; B. J. Cigrand, Chicago; Dr. J. Bauer, New Orleans, La.; Dr. Truman W. Brophy, Chicago; Frank S. Buckley, Chicago; Geo. H. Chance, Portland, Ore.; L. E. Custer, Dayton, Ohio; Dr. Calvin S. Case, Chicago; Dr. Louis Spaur, Brooklyn; Louis Jack, Philadelphia; G. W. Dittmar, Chicago; G. Robert Chance, Oregon; M. W. Foster, Baltimore; John F. Dowsley, Boston; G. W. Cook, Chicago; M. J. Dunn, San Francisco; Dr. R. Good, Chicago; Dr. Gordon White, Nashville; Mrs. Emma Eames Chase, St. Louis; Dr. William M. Griswold, Belair; Dr. Thomas L. Gilmer, Chicago; Jerome W. Egbert; A. E. Boot, New Zealand; S. H. Guilford, Philadelphia; Dr. W. E. Griswold, Denver; Dr. A. W. Harlan, Chicago; Pierre Harriett, New York; O. N. Heise, Cincinnati; Dr. Winthrop Girling, Chicago; Joseph Head, Philadelphia; H. B. Sweet, New York; Arthur J. Jessel, New York; Dr. J. E. Hinkins, Chicago; Dr. Alfred O. Hunt, Omaha; V. H. Jackson, New York; M. E. Gallup, Boston; Edward C. Kirk, Philadelphia; C. W. F. Holbrook, New Jersey; Charles A. Meeker, New Jersey; Alphonso Irwin, New Jersey; W. Jarvie, Brooklyn; Dr. F. B. Keppy, Brooklyn; Mr. MacBride, Perryville, Mo.; Dr. James McManus, Connecticut; Dr. Morffew, San Francisco; Louis Shaw, Brooklyn; N. V. Noble, New York; W. W. Niles, New York; Weston A. Price, Cleveland; T. J. Patterson, Montreux; Dr. Morgan, Nashville; Dr. Holme Morrison, St. Louis; Louis Ottofy, Manila; Alfred Owre, Minneapolis; Dr. John Dean Patterson, Kansas City; H. A. Smith, Cincinnati; Samuel Snow Smith, Hartford; D. Hurlbut Allis, Springfield; N. Amandas Schubert, Blairstown; Dr. Josephine Pfeifer, Chicago; Jonathan Taft, Cincinnati; Eug. Warner, Denver, Colo.; Joseph W. Wassall, Chicago; Dr. W. Wallace Walker, New York; Julius Weinberger, New York; John M. Whitney, Honolulu, Hawaii; G. A. Dungan, Eureka, Cal.; Marion E. Myers, Minerva, Ohio; Robert M. Wollison, New York; D. D. Van de Grift, Chicago; E. K. Wedelstaedt, St. Paul.

If we missed anyone from the United States it was purely accidental and not intentional. After Great Britain this was the largest list of foreigners in Paris. A. W. H.

Dr. J. W. Clowes, of New York, is dead.

Dr. Geo. R. Riddell, of Chicago, died September 17.

OBITUARY.

Dr. J. Belisario.

On Sunday Dr. John Belisario, the oldest and one of the best-known dental practitioners in Sydney, died at his residence, Cowper Street, Waverley. Dr. Belisario was born in London in 1820, and was thus eighty years of age at the time of his death. He came to the colony as far back as 1841, and commenced practice in Princes Street, then much nearer the center of Sydney than it is at present, and from that time right up to the day of his death he continued to practice in the city. He held high qualifications and a number of degrees, and was corresponding and honorary member of many dental associations in England and America. Among Freemasons he was well known, being a pastmaster in the Scottish constitution. He was twice married, his first wife being a daughter of the Rev. William Longfield, and his second wife a daughter of Dr. Ramsay. Although the deceased gentleman had reached such a ripe age, his death was unexpected, and came as a severe shock to his many intimate friends.

The funeral, which took place yesterday afternoon at Waverley Cemetery, was largely attended. The chief mourners were Mr. E. H. Belisario and Mr. G. A. F. Belisario; and among those who attended were Mr. H. Hugh Mackenzie, Mr. A. E. Ramsay, Mr. H. P. Abbott, Mr. A. Learmouth, Mr. P. Ramsay, Mr. J. Fesq, Mr. E. Mackenzie, Mr. W. Mackenzie, Mr. A. M. Severn, Mr. W. P. Creagh, Mr. R. J. Black, M. L. C., Mr. W. Brewer, Mr. W. Stephen, Mr. Nathan, Mr. W. Smythe, Mr. L. Sheppard Smith, Dr. R. L. Faithfull, Dr. MacLaurin, M. L. C., Dr. Manning, Dr. Gateward Davies, Dr. Scale, Dr. Marano, Dr. J. Cox, Dr. A. Cox, Dr. R. Fairfax Reading, Dr. P. Reading, Dr. E. Reading, and Dr. Burne. The funeral at the grave was impressively conducted by the Rev. I. Carr-Smith. Among those who forwarded wreaths were Judge Stephen, Miss Martin, Mrs. Mackenzie, M. H. Mackenzie, Dr. and Mrs Faithfull, Dr. and Mrs. Burne, Colonel and Mrs. Campbell Williams, Mr. and Mrs. L. Campbell, Lady Martin, Mr. and Mrs. H. P. Abbott, Mr. and Mrs. M. Severn, Dr. Manning, Mrs. Airey, Dr. and Mrs. Jamieson, Mrs. Bloomfield, Mrs. Rose, Mr. and Mrs. J. Gillies, Mr. and Mrs. Creagh, Mrs. Hilliard, Mrs. Alfred Hilliard, Mrs. Sidey, Mrs. Logan, Mr. and Mrs. R. Close, Mr. and Mrs. Fesq, Mr. A. Ramsay, Dr. and Mrs. Fairfax Reading, the Misses Nathan, Mrs. Sheppard Smith and Dr. Slate.—*Sydney Paper.*

THE

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ORIGINAL COMMUNICATIONS.

HEREDITY AND ENVIRONMENT.*

BY CHARLES J. WHALEN, M. D., LL. B., Chicago, Ill.

In the holy writ we are told that the sins of the father are visited on the children even to the third and fourth generation, other matter might be cited along this line, but suffice it to say that some men's sins do go before them into judgment and others follow after them.

When Alexander Pope said, "The greatest study of mankind is man," it was but a recognition of the truth and wisdom of the advice given us centuries before him by Socrates, who said, "man, know thyself." If we obey the inscription of the oracle of Delphi, which said, "man, know thyself," we shall find that we must also know our ancestors. Heredity, therefore, is the key to solve the problem.

We mean by heredity the relation between successive generations and living creatures or the transmission of physical and psychical qualities from ancester to progeny. This relation has a visible material basis in germinal matter by which certain organic continuity is kept up and is the most important ever acting and inaudible force by which man's destiny is determined. Rebot, in his work on heredity, defines heredity as that biological law by which all beings endowed with life tend to repeat themselves in their descendants; it is for the species what personal identity is for the individual. A more intelligent definition of heredity would be that it is the law by which individuals receive from their parents by birth their chief vital forces and tendencies, their physical and spiritual capital stock for the business of life.

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*Address before Chicago Odontographic Society, April 16, 1900.

Prof. Brooks, of Johns Hopkins University, once said that the development of an animal with its complex and beautiful adjustment, the instincts, habits, and individual traits of its parents, is one of the most beautiful phenomena of the material universe.

Heredity and environment are to-day the most interesting questions in physiology and natural history, and not less so in that branch of applied science which we call medicine, and it is peculiar that a subject of so much importance is so little discussed and about which there is so much universal ignorance as the one which has to do with the progress and improvement of the race. The medical profession has a large responsibility in this regard; it is the custodian of the welfare of the physical organism, and no part of this is more important than the study of the laws of its perpetuation and development. The peculiar and intimate relation between the profession and society fits it to bring before the public all that is latest and new. This enlargement of the physician's sphere is of modern date, for until recently nearly all the profession believed that their office extended no farther than to administer medicine and collect fees. But to-day they stand as public advisers, and because of the gross ignorance of the public regarding heredity we should use every endeavor to educate the people regarding the evils of this subject.

In proposing to discuss heredity I do not wish to be understood as an original investigator, but from a careful research of all the books on this subject that I have had access to, I have compiled the thoughts of others with some comments and observations of my own for mutual benefit. This subject I consider of the most vital importance to the students of ethics and the servant of humanity. There is, therefore, very good reason for presenting it to this audience, because there is no subject concerning which there is so much false conception and misunderstanding, and because of the loose ideas that have become fastened upon it, it is always wise to do a little missionary work for this subject, and since in many communities physicians stand as the representatives of science these questions will, in all probability, be referred to you at one time or another.

Among all the changes wrought by scientific research, no fact stands out more clearly than the one that an entirely new system of education is essential. The old time educator studied books; the up-to-date educator studies life also. The old-time educator emphasized book learning; the new school educator not less book knowledge, but a clearer study of the pupil. Formerly the world asked what does the teacher know of literature; now the inquiry is, what does he know of the child? Sociology therefore has its place among the sciences, and even claims its place to be the keystone of the arch. Teachers have ceased forming theories and then adjusting facts to them, but to-day they are studying facts in human nature and from them devising their theories.

"Like begets like." This is a simple proposition, and an axiom as old as the records of human thought. Monkeys always give birth to monkeys, and human beings invariably spring from human parentage; negro parents will always produce children black in color; a spaniel is never produced by a bulldog, nor a canary by an owl. Breeders of live stock all have the form and make-up of the sires and dams constantly before them in estimating the value of the expected offspring; they believe that courage, tenacity and gameness are the result of intelligent breeding and are hereditary qualities. The thoroughbred and trotting horse are the result of this belief, and show not only the truth of heredity but the excellence of the product. The pointing or setting instinct in dogs is but the development through heredity of that estatic pause that the presence of quarry excites in beasts of prey. In securing the result desired, men experienced in breeding animals study as carefully the lineage and physical characteristics of the dam as they do the sire, but I am inclined to believe the mother is the more important factor here, as I believe it to be the case in man in establishing character and qualities. Parents expect their children to resemble them in appearance and tendencies, likes and dislikes, and the law of heredity here manifests itself with such certainty that the conclusion is reached that heredity is the law and non-heredity the exception.

Scientific physiologists consider the function of reproduction as the most important and influential function of the human economy. It has attracted the attention of thoughtful people since civilization began. In ancient times men pondered over the resemblances and differences between children and their parents, and wondered at the nature of the bond which links generation to generation, but although the problems are old the precise study of them is altogether modern, for it was largely under Wallace's and Darwin's influence that the scientific problem of heredity began.

The study of heredity, in its entirety, embraces that of evolution in a great measure, since they are so blended that they must go hand in hand, and in this field we may presently expect great discoveries. The first definite statement we find concerning evolution is the one made by Aristotle and called the theory of "Epigenesis." He claimed that the individual originated from a homogenus mass, that there was no differentiation of part in it, and that as it developed there was an addition of organ to organ until the mature structure was reached, the idea being that these organs were gradually formed and did not pre-exist. The new theory which held sway until the middle of this century claim that the germ cell, the egg of the plant or animal, contains every organ to appear in the mature body. Of course, these organs are of the minutest size, and to the process of unfolding the organs already there has been applied the name "Evolution." Of course, this idea of the evolution of the individual was very soon abandoned after the biology of to-day began to assert itself. But the evolution of the species is no longer a question of doubt as in the last century. It is a fact of daily observation in biological laboratories everywhere. It is no longer a theory but a demonstration that the original mass is homogenus, and that organ is added to organ until mature form appears. Generally the more interesting phase of evolution concerns the whole assembly of living things as we find them on the earth, this thought has been in the world ever since men thought at all, and when you go back farther and farther in their philosophising you will find that it was formerly fixed in the minds of thinking men that species begets species just as individual begets individual. The thought of evolution therefore is no modern thing.

Two theories have long been extant as to the origin of life. There have been two schools with diametrically opposite views, the one claiming that life can be spontaneously generated, the other that life can only come from pre-existing life. But to-day scientific authorities are unanimous on this point, "Omne vivum ex vivo"—all life comes from life. The germ in both animal and plant life is itself simply a detached portion of the substance of a pre-existing body. Life therefore can be produced from living ancestors only. Wilson, in speaking of the cell in reference to its development and inheritance, says that the germ can carry with it the sum total of the heritage of the species; that it can in the course of a few days or weeks give rise to a mollusk or a man and is the greatest marvel of biological science.

Huxley says: "It is certain that the germ is not merely a body in which life is dormant or potential, but that it is itself simply a detached portion of the substance of a pre-existing body." The wonderful formative energy of the germ is not impressed upon it from without, but is inherent in the egg as a heritage from the parental life of which it was originally a part. I am inclined to think with Darwin and other naturalists that the germ is endowed with invisible peculiarities, for good or evil, which may be kept in obeyance for several generations, but under certain conditions favorable to them may suddenly develop themselves.

In considering the subject of heredity it should be remembered that two great laws govern the transmission of life: the law of uniformity and the law of diversity. Under the law of uniform transmission of organization, children receive from their parents not only their physical characteristics, but also their mental and moral constitution. The combination of the constitutions of the parents (possibly widely different in make-up) may determine peculiarities unknown to either parent (a chemical reaction, as it were). In this connection we might add that consanguinous marriages very often play an important part in the future of the children, the small evils of a family being intensified by a double portion of the evil influences uniting instead of diluting by marriage of different blood.

Under the law of diversity, deformity and ugliness may give birth to manly strength and beauty. Intellect may be succeeded by imbecility, and virtue by vice. The law of uniformity accounts for all that comes from the past; the law of diversity for all that is new in the development of life. Rebot contends that "sometimes the parent transmits the entire physical nature," and cites cases to prove this theory. For instance, a white man of superior intellect marries an ignorant, stupid negress, and the offspring of this union was a son, who, while as much a negro as his mother, was a giant in intellect and was elevated to the most learned positions on the island where he lived. While on the other hand, he cites the case of a white man who married an ugly and unsightly Indian squaw who afterwards gave birth to a female child who grew up to be noted for her beauty and accomplishments.

If you are familiar with Darwin's works you will remember that he takes varieties for granted, but does not explain their origin. Weissman attempts to prove the continuity of the germ plasm, that is, that the reproductive substance is handed down from generation to generation and is never lost in the midst of the most complex structures. This "germ plasm" is the bearer of hereditary tendencies which have accumulated from long ancestry, therefore, whenever sexual union occurs and two germ plasms unite the result is to mingle two long strings of hereditary tendencies in a combination which previously never existed. The resultant organism therefore is never exactly like its fellow. For this reason Weissman sees in sexual reproduction a scheme for originating varieties, but until the new type is strongly established there is a possibility of a return to the original, when former conditions are permitted to have exercise.

Somatic variations, in the direction of adaptation, pave the way for germinal variations, so that, while Somatic modifications as such are not inherited, they are yet the favoring conditions under which germinal variations are preserved by the great principle of natural selection. As a result of intermingling what becomes of the racial traits in each case? The answer has not been fully worked out, but we may say with certainty this much: that the psychical are transmitted along with the physical peculiarities, that in hybrids such peculiarity of either of the parents may be transmitted independently of the other. It sometimes happens that the offspring presents a remarkable blend of paternal and maternal characteristics. The cases which seem most illustrative of such blending are cases of hybridism between relative species of breeds, where the blending is more readily detected. We may refer to such obvious cases as the blending of character as seen in the mule (male-ass cross mare), and in the hinny (horse cross female ass).

Much commoner than an approximation to complete bilateral inheritance is the occurrence of well-marked unilateral inheritance, where the son, is as they say, the image of his father, or the daughter the reflection of her mother, or even more frequently, where the inheritance is, as they say, crossed, the son taking after the mother and the daughter after the father. Cases are on record where the young boy resembles the mother and the girl the father, but when they became of age the likenesses were reversed, that is, formerly obscure resemblances beame dominant. There is no explanation why sometimes the male and other times the female impress the offspring to a greater degree, and not only do certain traits of either parent appear only late in the life of the offspring (deferred or "homochronous heredity"), but may slip a generation before their appearance. Although inheritance is nearly always dual or two-fold, part of it coming from the mother and part of it from the father, and though the contribution made by each will not afterwards be recognizable when the individual grows up, there is no possibility of wriggling past the conclusion that there is a dual responsibility in parentage. These are facts of observation, whether we are able to explain them or not.

The important question before the public to-day is, how far is heredity responsible for disease? We acknowledge heredity to be a fact, and, without venturing into the jungle of Weissmanian controversy over the qualities of inherited or acquired character, we must freely acknowledge that susceptibility towards certain diseases is undoubtedly handed down from parent to child in legitimate succession. In no other way can we explain the facts of racial susceptibility and immunity, for certain bacilli may be pathogenic for one species and not for another, as for instance the American negro, the Scandinavian and Irish, seem to be especially susceptible to the bacillus of tuberculosis, and the micrococcus of pneumonia, while it is claimed that the Jewish race exhibit marked resistance to both these germs. The fact that Algerian sheep and white rats resist inoculation with anthrax bacillus, while cattle, rabbits, guinea pigs, ordinary sheep and white mice quickly succumb. The bacillus of house septicaemia kills house mice, but field mice are fully immune from its pathological effects. The only way we can explain the susceptibility to glanders in field mice, while white mice and house mice do not succumb to the same infection, is by postulating an inherited racial predisposition or a tendency in the one case and an inherited resistance in the other.

We have equally good ground for believing that similar tendencies or susceptibilities to disease run in certain human families just as special musical, artistic or mathematical aptitude shows itself in certain family stocks and not in others. In our everyday life we see instances where a family is nearly blotted out by consumption, others by cancer, and still others find the majority of the family in the insane asylum, or all are invalids from rheumatism; again we find the drunkard's children following the footsteps of their father, unless the mother has sufficient individual individuality to impress the children with some of her own better qualities. In one family there is a special liking for music; in others a tendency to melancholia and an inordinate fondness for alcoholic drink and the divine gift for poetry. Each and all of these qualities may be, as we say, "in the blood," that is, truly inborn or congenital.

In speaking of inheritance we should carefully discriminate between heredity and parental influences. Many authentic instances of infections of the child in utero have been reported in cases of endocarditis, measles, pneumonia, typhoid fever, and anthrax bacilli are able to pass to the fœtus through the placenta, and all should for the sake of clearness be called parental influences. Physicians constantly write of tuberculosis, idiocy, insanity, leprosy, smallpox, nervous disorders, vices of blood, which are expressed in gout and rheumatism as being hereditary, but it is incorrect and misleading to do so. Perhaps the most striking of all hereditary diseases is hemophilia, but a study of the pathological conditions involved show that the trouble is due to a congenital fragibility of the vessel and a defect in the coagulability of the blood. So too, in idiocy, we have a direct malformation of the brain to account for the symptoms. While in all ages it has been a matter of fixed belief that the peculiarities, physical and psychical, qualities and diseases of human beings were hereditary, it is only in recent years that the writers have conceded that it is the predisposition and not the disease that is inherited, and that the specific and exciting cause must originate either in the individual or be the result of external environment.

Heredity, too, may include abnormal as well as normal peculiarities, what is true of those individual peculiarities, which in no way interfere with health is also true of defects of constitution. Certain abnormalities of structure, as for instance extra fingers and toes, have been recorded for six generations. Again, hare lip and cleft palate have been known to appear generation after generation, in others a marked tendency to talipes; again, three or four generations have been known to present supernumerary teeth, also three generations to be minus the left superior cuspid tooth. In my own experience I have lately seen a family in which every child immediately on coming into the world is examined for birthmarks, through generations this peculiarity has been handed down. Thus I might continue to enumerate physical peculiarities from one generation to another, but suffice it to say when any of the abnormalities are found in a parent it will always be found more frequently in the progeny of such a parent than in the descendants of parentage not possessing such a peculiarity. They tend to perpetuation.

The question is often raised as to whether mental characteristics, traits, virtues and vices, passions and the emotional side of man are transmissible. Virtues as well as vices can be traced for several generations. In some families the trend is towards the ministry; in others, law; in another, medicine; and still in others, politics. Certain characteristics have been generally conceded as thus existing and are unquestionably inheritable. Among these I would enumerate fecundity, longevity and brevity of life, and such personal characteristics as may properly be called idiosyncrasies in the individual. The characteristics of the senses as touch, vision, smell, taste, hearing are under the same law. Congenital and color blindness are undoubtedly hereditary, and when the congenital deaf mute is mated with another deaf mute we have a reasonable right to expect this defect in the offspring.

At this stage it may be well to give some illustration of the transmission of mental heritage; it can best be illustrated by studying the genealogies of such persons as Aristotle, Gœthe, Darwin and Milton. Probably the Bach family, in Germany, supply one of the best illustrations of the inheritance of intellect that we know of. The record of this family began in 1550, lasting through eighteen generations to the year 1800. For about two centuries it gave to the world musicians and singers of high rank. In this family of musicians, twenty-nine became eminent.

It is a matter of daily observation that parents gifted with bright and cultivated minds generally engender bright, intelligent children, while those parents who are stupid and ignorant produce offspring stupid from their birth. This statement may be objected to when we remember that such men as Socrates, Plato, and many other noted men of brain power have not transmitted their intellectual power to their progeny. This may be accounted for on the ground that the inherited character is due to the combined influence of both parents, and much of the desirable qualities of the father may be neutralized by the defective qualities in that direction by that of the mother.

Alienists inform us that in a large proportion of insane patients, heredity plays an important causative roll; hence, insanity in all its forms—mania, dementia, melancholia, with suicidal tendencies (which has been observed as early as five years of age), being the result of an organic disease—is liable to be traceable in the offspring. Insanity in the progenitor may be followed by various nervous diseases in the progeny. While nervous diseases in the progenitors may be followed by insanity in the offspring. I have known a parent, three sons and three daughters to be in an insane asylum and in another family the mother, one son and two daughters to be in the insane hospital at the same time.

Esqueral saw, at the Salpetriere in Paris, an idiot woman, the mother of two daughters and a son—all idiots. Epileptics are frequently the result of tubercular or syphilitic parents, the children afflicted with chorea may result from a nervous and debilitated person. In this connection a consideration of the subject of hereditary tendency to intemperance would not be out of place, while no one believes that intemperance itself is transmissible, the physical condition which makes intemperate habits easy, and if circumstances favor almost inevitable is surely transmitted. What is said of the liquor habit can also be said of the drug habit. The habits of the parents become the almost irresistible instinct of the child. The cherished vice of the father becomes the overpowering impulse of the son or daughter; hence, the organic tendency is excited to the utmost and the power of the will and conscience is proportionately weakened, so that by natural law and not by any arbitrary or unjust interpolation of divine vengeance that "the sins of the parents are visited upon the children," verily the parents eat sour grapes and the children's teeth are set on edge.

We may therefore include the mental faculties in the same category with bodily structure; but we need not stop here, however, for what is true of the physical and mental characteristics is equally true of the purely moral qualities. Honesty and dishonesty, truthfulness and untruthfulness, morality and licentiousness are not wholly the result of environment or education, while it might be argued that in some cases the vices develop not from heredity but as a result of being brought habitually in contact with drunken fathers or morphine eating mothers; but case after case could be cited where children born of sots, or opium habitues, have been removed to entirely new environments, where they knew nothing of their parents or their habits, and yet the same sad story has been repeated in their cases. While the rule does not hold good in all cases, it is true in the great majority of instances. It is true that environment has much to do with perpetuation of moral traits or the modification of them, yet it is equally true that dishonesty runs in families and that there are in some natural tendencies towards licentiousness that no education and no environment can wholly eradicate.

Nero was a lineal descendant of the Claudian family, from which came Tiberius and Caligula, and the terrible atrocities which marked his career and reign, commenced with his grandfather, were more strongly developed in his own father and were fully developed in him. The queen called bloody Mary was the daughter of the bloodthirsty tyrant Henry VIII. of England, by his first wife. The remarkable increase in numbers in family line of defectives and incapables may be best illustrated by quoting two instances, one founded on the report of Miss Shuyler, President of New York Charity Aid Society, of "Margaret, the mother of criminals" and progenitor of a family of paupers, beggars, prostitutes and criminals, which finally became a race of 700. Their family vigor was largely preserved by intermarriage with fresh, vigorous families of ruffians, and some of the women bore at least twenty children, among which were numbered insane, epileptic and imbecile. Dr. Barris in his article on the influence of heredity and idiocy gives the record of a family known as the Tribe of Ishmael, where the descendants of one unclean neurotic man traced through many years, "multiplied by consanguineous marriages into 520 families, numbering some 5,000 individuals whose continuous criminal record has poured over the northwest a flood of imbecility and crime," nor do these instances stand alone. Of 709 descendants of Frau Ada Jurke, seven have been convicted of murder; seventy-six of other crimes; 141 were professional beggars; sixty-one lived on charity, and 181 were prostitutes.

Heredity in its relation to crime and pauperism has been thoroughly investigated by Mr. Dugdale in his most interesting little work entitled the "Jukes." In this work the descendants of one vicious and neglected girl are traced through a number of generations in which he found 1,220 descendants. It reveals that a large proportion of the women became licentious, for in the course of six generations he found that 52 per cent of the females became harlots and 23 per cent of the children were illegitimate. It shows also that there were seven times more paupers among the women than among the average woman of state, and nine times more paupers among the male descendants than among the average man of state.

It is rare that one of the criminal classes begets anything but a criminal. Generations of thieves can be traced back from son to father and then to grandfather and so on indefinitely. Examples of hereditary vice and criminal instinct may be found in every page of history. Cæser Borgia, hideous and execrable, was the exact image and counterpart of his father, Pope Alexander VI. Some men, therefore, are virtually born criminals. Their parents were such before them and they are so in spite of the most favorable surroundings or influences that would tend to modify these traits. We see examples of this all around us; there is the accidental criminal and the habitual criminal. The one may be fairly ascribed to the vitiating influences of unfavorable surroundings or bad education. The other is most always the result either of inherited tendencies or disease or defect.

The study of crimes and morals are closely associated because immorality in the form of drunkenness, morphinism, and cocainism and sexual perversion, with instances of which the penitentiaries abound, is next to inebriety as a cause of crime. These accomplishments are the most frequent cause of criminality; the inmates of prisons, whether they are criminals by occasion, criminal by profession or habit are generally the victims of some of these forms of immorality. However, the greatest criminals in the land are not the greatest drunkards. The men who make a profession of crime and will startle and alarm the world by the boldness of their daring and their skill in their craft, are often total abstainers from intoxicants. But let their environment be carefully investigated, the school of their early training be closely examined, and in the vast majority of cases it will be found that intemperate parents sowed the seed of crime producing characteristics, moral and physical degeneration.

If the ignorance and parental pleasures of one generation may produce vices, crimes and diseases of another, a question of tremendous import arises. Is heredity as potent in the direction of virtue and health as it is of vice and disease? At the first look one is almost tempted to say nay; for the most striking examples of heredity seem to be in the direction of evil. But this is perfectly natural. Decay is always more rapid than growth, a cherry rots much more quickly than it ripens, vice and disease spread much more quickly than virtue and health. But all history and all social and medical science teach that vice and disease carry with themselves the seeds of decay, and virtue and health the seeds of endurance and growth. Man therefore is not simply a creature of the present, but profoundly a product of the past. Bodily structure, moral and intellectual tendencies, diseases, vices and virtues are all in the marvelous stream of heritage that comes to him from the past. Diseases that no facts in the individual life can account for point gaunt fingers of blame from one generation to another; not a murderer is hung, not a daughter starts on the downward way, but a great company like those who were present at the stoning of Stephen stand by inaugurating and consenting to the ruin. Truly then has it been said that the past is at work in the present, its powers reaching downward through ages to all the race, largely molding every human life, touching and influencing every individual thought and will and more than any other force coloring history.

Have we evidence that heredity is still at work, or have we reached the summit of human perfection where heredity can do no more? For a long time attention has been paid to the breeding of domestic animals and the result has been astonishing. The lesson does not end in the study of brutes, but extends to and involves human destiny. In the human family enough has been collected to give in a general way scientific support to the popular belief that "blood will tell"; moreover, if we have a right to draw analogies from the lower animals, the advantage of belonging to a truly noble house is incontestable. Take a select class of men and women and supply a system similar to the one applied to the American trotter, and wonderful would be the result, surpassing even our most sanguine expectations; in a few generations we would see a distinct and mighty race. No mind can conceive the latent potentiality of the human race. By proper efforts in the right direction man might be developed into a being grander than his loftiest ideals. Take the history of the mighty Greeks, where could such a grand and noble race be found? You cannot say this was chance, for history tells of their system whereby none but the perfect were allowed to reproduce, and if a weakling was born he was not allowed to live. This system includes methods revolting to some of us, but you will admit that the results were better than we have at the present day.

The inherent capacity of man has never been fully tested. The inborn greatness of the human race has never been developed; man's potentiality remains an unknown quantity; occasionally we have a glimpse of glory; occasionally there may be thrown high upon the beach a Socrates, a Shakespeare, a Newton or a Franklin; but the rapidly ebbing tide sinks back to the level of a sluggish sea, only to leave them there high upon the sands, far away from the common crowd.

It is sad to think that man with his wonderful brain should be bred inferior to the American trotting horse. Man has improved some races more than others, but he has not improved as rapidly as the animals domesticated by him. However, it is impossible for man to remain in a state of equilibrium. He has been furnished with undeveloped powers, and surrounded by a nature full of possibilities, and he must look and push somewhere and that where is forward. He cannot say, as did Alexander, that "there are no more worlds to conquer," for as long as the human race has malignant influences to combat, there will be battles to fight and victories to win.

I now desire briefly to discuss the question of environment as it relates to the subject of heredity. Admitting the law of heredity the human race starts out in life with a vital capital supplied by its ancestry, marked by the peculiarities of his time, his condition and his parentage, modified or intensified by his surroundings, supplied with tools, as it were, with which he must do his life work. From the moment life begins another factor becomes the supremely important one. This factor is the environment and compels the attention of every student of sociology, and I am inclined to believe that the part played by it in civilization is as great as that of heredity. Side by side they go modified or being modified by each other.

When we look over the works of the living anthropologists we find they differ remarkably in their teachings concerning the relative influence of heredity or inherited traits and those external agents which we call environment or surroundings. To reach correct conclusions on this difficult question we must first define clearly what is to be understood by environment. As taught by Prof. Capitan in the Paris school of anthropology everything is environment and there is no place for heredity. However true this may be it does not do away with the traits which make up family stock and race. No one can question but that the broad physical traits which distinguish the sub-species of men are faithfully transmitted and have been for many thousand years. In this scheme it is at once apparent that there is no contrast of factors. The individual or ego is regarded as a psychic entity, to whom its body with all its peculiarities is a portion of his surroundings, or, in other words, environment consists of all the events and conditions surrounding him after birth that modify his nature and change the tendency of his life.

A better definition of environment would be that it is the sum of all the agencies and influences which affects man's organization from without, and which in any way touches or influences him from the beginning of his career. Among the influences which have most to do with human growth and which belong to the subject of environment, are the soil, climate, food, kind of employment, degree of civilization, state of morals of the society and the examples and ideals which are set before him; other causes, some good, some evil and some mixed, also play their part in deflecting him from the course upon which he originally started. Environment therefore embraces the physical, geographical and social surroundings of man. Good influences tend to overcome original defects and to counteract a tendency to transmission, while bad surroundings make more certain the transmission of defects. Man therefore, in his totality, is the result of two great factors—heredity and environment. Heredity brings down to him the streams of tendency of former generations, often of a healthy and beneficial character, but still more often surcharged with lust and passion, and reeking with disease. Environment is the co-operating and to us vitally important factor, inasmuch as it may supplant and thus reënforce the hereditary tendencies, whether good or bad, or it may even tend to turn them into new channels, correcting evil or vitiating the good.

Admitting then that crime, idiocy and imbecility are the result of vicious inheritance and that they are perpetuating their kind, it seems to be imperative that some method of correction should be advised. More diseases are spread through marriage than any other way, and if we are ever to have a pure race we must first take some steps towards preventing the propagation of bad and faulty individuals, for we have seen that habitual drunkenness, insanity, tendencies toward crime, imbecility, mental, physical or constitutional diseases may be transmitted to the progeny. If the fountain head of the stream is not pure, we cannot expect the water below to be pure. If in the laboratory of nature we combine two parts of hydrogen and one part of oxygen, we call the resulting compound water. But in the chemistry of life, if we combine two parts of immorality, and one part of insanity, who can tell us what the compound will be? Do we not have this same identical problem to deal with in heredity? Every day of our life we see this sad debauchery in chemistry. If in the sacred laboratory of wedlock we combine immorality, insanity and disease we must remember that the laws of nature are never false. If the resulting compound is not as we would have it, it is because the proper ingredients were not used. As we have sanitary laws to protect the health so we should have hereditary laws to protect posterity. The forces and causes which mold human destiny should be carefully studied and understood. The education of the people to the comprehension of the magnitude and the obedience to the dictates of these factors should be observed.

It is indeed a vexatious question to discuss as to what means should be employed which will offer the best and quickest results in checking the baneful effects of heredity influences as pertain to vice and crime. Criminologists cannot claim that the workhouse is a complete success. Indeed, it is generally conceded that a criminal is a worse foe to society when he comes out of prison than he was when he entered it. We have therefore to consider what penalties will deter the individuals themselves or others from acts that are found to be prejudicial to society's best interest. I believe we are justified in making use of any penalties that offers the prospect of advancing society's good. The use of punishment is twofold—first, to deter the individual or to prevent him from pursuing injurious practices; and second, to prevent or deter others from imitating him. It is quite possible that in the twentieth century, when we have learned more of heredity, the civil authorities will seriously consider the question of "shall criminals be unsexed"? This measure will be considered both as punishment for crime committed and as a preventative for the perpetuation of what is vicious and dangerous to society through inheritance.

In conclusion, suffer this very simple remark. The study of inheritance leaves a fatalistic impression in many minds, and to some extent this is justified. We cannot get away from our inheritance. As the poet Heine said half bitterly, half laughingly, "A man should be careful in the selection of his parents."

ANTISEPTICS AND DISINFECTANTS.*

BY ELGIN MAWHINNEY, D. D. S., CHICAGO, ILL.

This paper is a partial report of a series of experiments being conducted by Dr. G. W. Cook and myself with a view to determine the relative action of certain agents upon bacteria. The writer wishes to publicly acknowledge his indebtedness to Dr. G. W. Cook and Dr. G. W. Dittmar for valuable assistance in the experimental work; also to Mr. Paul Rudnick, R. P., for aiding in searching the literature, in many languages, and to Mr. A. D. Thorburn, R. P., for aid in selecting and testing the purity of agents used.

There seems to be a confusion in the minds of some of the profession regarding the use of the terms *antiseptic* and *disinfectant.* In this paper they are used in the following sense:

An antiseptic is an agent that is capable of preventing the growth of putrefactive bacteria; a disinfectant is an agent that is capable of destroying putrefactive bacteria and their spores.

There is no subject so full of interest as that of the history of antisepsis. The word antiseptic comes from a Greek word meaning "against putrefaction." As far back as history can take us we find that men recognized that certain substances spoiled and gave off bad odors. Men early recognized that conditions of ill health were "catching," that the healthy took certain diseases from the sick. The Egyptians discovered that by using certain agents they could to a degree prevent the decomposition of dead bodies and other substances.

Early in the history of Greece we find the physician experimenting with agents endeavoring to destroy the foul odors arising from certain decompositions. Homer gives a brief account of Ulysses using a substance which we know as sulphurous acid to destroy foul odors, believing *that* to be the thing that made disease catching. Century after century men fought and died trying to stay the ravages of plagues and pestilences, each generation adding a little to the existing knowledge.

Modern antiseptics began with Prindle, an eminent dermatologist, who conducted a series of experiments to determine the action of disinfectants upon infectious material. Next came Semmelwise, who recommended the use of chlorine water for cleansing hands and wounds. La Mare, a French chemist, recognized the antiseptic properties or carbolic acid and introduced its use. Later Lister introduced this agent as a surgical dressing. But it was Koch who brought order out of the chaos of the work done before, and established a reasonably accurate basis upon which experimental work could be conducted, since which time men all over the world have been experimenting.

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*Read before the Illinois State Dental Society.

"To some decomposing matter or solution a disinfectant was added and subcultures made. If the bacteria continued to develop, the disinfectant had not been efficient; if, on the other hand, the cultures remained sterile, disinfection was complete. From such rough and ready methods large deductions were drawn, and it is hardly too much to say that no branch of bacteriology contains such a vast mass of unassimilated and unassimilable statements as that relating to the research into disinfectants."—*Newman.*

"There is no wider field for research than the determination of the real effects of disinfectants and antiseptics. Painstaking and laborious as the researches are which have been hitherto made, the subject is so beset with fallacies, leading in some cases to totally erroneous conclusions, that it is not at all surprising that one meets on all sides with conflicting statements."—*Crookshank.*

In making tests of the comparative power of agents as antiseptics or disinfectants, certain rules must govern if the results are of value:

I. The composition of your culture media should be such as to furnish the best possible media for the organism used to grow in.

II. The organisms should possess equal power of resistance.

III. You should use pure cultures.

IV. The number of bacteria in comparative tests should be equal.

V. The bacteria should be exposed to equal quantities of agents used for a definite time.

VI. The bacteria should be transferred to culture media in equal numbers.

VII. They should be kept at their optimum temperature.

VIII. When in doubt as to result, bacteria should be counted at a given period of time.

IX. When doubt still exists, tests should be made on animals susceptible to the bacteria used.

X. Sufficient time must always be allowed for the development of restrained organisms.

The culture media used in my experiments was nutrient beef bouillon carefully made and sterilized according to the usual methods. The organisms used were fresh, pure cultures of staphylococcus, except when otherwise indicated. The reasons for using pure cultures were:

I. To obtain specific action on the bacteria.

II. Mixed cultures of bacteria and their products so act upon each other as to lessen their resisting power to chemical agents. The reason for using the staphylococcus is, *that* it is the organism with which dentists have to deal most frequently.

Method. The organisms were distributed *carefully* throughout a tube containing 10 c. c. of nutrient beef bouillon (examination made to see that colonies were broken up and thoroughly distributed). A loop full of this was transferred to fresh tube containing 10 c. c. of the media into which the medicament was distributed carefully, weighing the amount used. This was then placed in the incubator and kept at 37° C. and examined from time to time. The tables are self-explanatory.

SERIES A—Number 1.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.		Remarks.
Oil Cassia	$\frac{1}{12}$ minim	Growth	Good growth	Very marked growth		At the end of 72 hours scarcely any difference could be seen between all the agents and the controle tube.
Oil Cinnamon	$\frac{1}{12}$ "	"	"	"		
Oil Peppermint	$\frac{1}{12}$ "	"	"	"		
Oil Cloves	$\frac{1}{12}$ "	"	"	"		
Oil Cajuput	$\frac{1}{12}$ "	"	"	"		
Black's I, II, III	$\frac{1}{12}$ "	"	"	"		
Oil Wintergreen	$\frac{1}{12}$ "	"	"	"		
Oil Eucalyptus	$\frac{1}{12}$ "	"	"	"		
Oil Cedar	$\frac{1}{12}$ "	"	"	"		
Oil Cade	$\frac{1}{12}$ "	"	"	"		
Oil Birch Tar	$\frac{1}{12}$ "	"	"	"		
Melted Crystals Carbolic Acid	$\frac{1}{12}$ "	"	"	"		
Pure Beechwood Creosote	$\frac{1}{12}$ "	"	"	"		
Campho-Phenique	$\frac{1}{12}$ "	"	"	"		
Controle		"	"	"		

SERIES A—Number 2.

Oil Cassia	¼ minim	Growth	Good growth	Very marked growth		Like Series A No. 1, scarcely any difference could be told between tubes containing agents and controle.
Oil Cinnamon	¼ "	"	"	"		
Oil Peppermint	¼ "	"	"	"		
Oil Cloves	¼ "	"	"	"		
Oil Cajuput	¼ "	"	"	"		
Black's I, II, III	¼ "	"	"	"		
Oil Wintergreen	¼ "	"	"	"		
Oil Eucalyptus	¼ "	"	"	"		

SERIES A—Number 2. Continued.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.		Remarks.
Oil Cedar	¼ minim	Growth	Good growth	Very marked growth		
Oil Cade	¼ "	"	"	"		
Oil Birch Tar	¼ "	"	"	"		
Melted Crystals Carbolic Acid	¼ "	"	"	"		
Pure Beechwood Creosote	¼ "	"	"	"		
Campho-Phenique	¼ "	"	"	"		
Controle		"	"	"		

SERIES A—Number 3.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.		Remarks.
Oil Cassia	½ minim	Slight growth	Good growth	Very marked growth		
Oil Cinnamon	½ "	"	"	Good growth		
Oil Peppermint	½ "	"	"	"		
Oil Cloves	½ "	"	"	"		
Oil Cajuput	½ "	Growth	"	"		
Black's I, II, III	½ "	Slight growth	Slight growth	Good growth		
Oil Wintergreen	½ "	Growth	Good growth	Very marked growth		
Oil Eucalyptus	½ "	"	"	"		
Oil Cedar	½ "	Slight growth	Growth	Good growth		
Oil Cade	½ "	"	"	"		
Oil Birch Tar	½ "	"	"	"		
Melted Crystals Carbolic Acid	½ "	Growth	Growth	Good growth		
Pure Beechwood Creosote	½ "	"	"	"		
Campho-Phenique	½ "	Good growth	Good growth	Very marked growth		
Controle		"	"	"		

SERIES A—Number 4.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cassia..........	¾ minim	Growth	Good growth	Very marked growth		
Oil Cinnamon........	¾ "	Slight growth	"	"		
Oil Peppermint......	¾ "	"	"	"		
Oil Cloves..........	¾ "	"	"	"		
Oil Cajuput	¾ "	"	"	"		
Black's I, II, III.....	¾ "	"	"	"		
Oil Wintergreen.....	¾ "	Growth	"	"		Those marked "very marked growth" could scarcely be told from controle tube.
Oil Eucalyptus.......	¾ "	"	"	"		
Oil Cedar..........	¾ "	Slight growth	Growth	Good growth		
Oil Cade............	¾ "	"	"	"		
Oil Birch Tar........	¾ "	"	"	"		
Melted Crystals Carbolic Acid ...	¾ "	"	"	"		
Pure Beechwood Creosote	¾ "	"	"	"		
Campho-Phenique ...	¾ "	Growth	Good growth	Very marked growth		
Controle		"	"	"		

SERIES A—Number 5.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cassia..........	1 minim	Growth	Good growth	Not examined	Very marked growth	
Oil Cinnamon.......	1 "	"	"	"	"	
Oil Peppermint......	1 "	Slight growth	Slight growth	"	Growth	
Oil Cloves....... ...	1 "	No growth	"	"	"	
Oil Cajuput..........	1 "	Slight growth	Good growth	"	Marked growth	
Black's I, II, III.....	1 "	Growth	"	"	"	
Oil Wintergreen.....	1 "	"	"	"	"	Some oil in bottom of tube.
Oil Eucalyptus.......	1 "	"	"	"	"	
Oil Cedar...........	1 "	No growth	Slight growth	"	Growth	

SERIES A—Number 5. Continued.

Medicament used.	Amount of Medicament used	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cade	1 minim	No growth	Slight growth	Not examined	Growth	
Oil Birch Tar	1 "	"	"	"	"	
Melted Crystals Carbolic Acid	1 "	Slight growth	"	"	"	
Pure Beechwood Creosote	1 "	"	"	"	"	
Campho-Phenique	1 "	Growth	Good growth	"	Marked growth	

SERIES A—Number 6.

Oil Cassia	1¼ minims	Growth	Not examined	Not examined	Marked growth	Oil in bottom of tube
Oil Cinnamon	1¼ "	"	"	"	"	"
Oil Peppermint	1¼ "	Slight growth	"	"	Growth	Oil on top of broth
Oil Cloves	1¼ "	"	"	"	"	Oil in bottom of tube
Oil Cajuput	1¼ "	"	"	"	Marked growth	Soluble still
Black's I, II, III	1¼ "	"	"	"	Growth	"
Oil Wintergreen	1¼ "	Growth	"	"	"	Oil in bottom of tube
Oil Eucalyptus	1¼ "	"	"	"	"	Soluble still
Oil Cedar	1¼ "	Slight growth	"	"	Slight growth	"
Oil Cade	1¼ "	"	"	"	"	"
Oil Birch Tar	1¼ "	"	"	"	"	"
Melted Crystals Carbolic Acid	1¼ "	"	"	"	Growth	"
Pure Beechwood Creosote	1¼ "	"	"	"	"	"
Campho-Phenique	1¼ "	"	"	"	Good growth	"
Controle		Growth	"	"	Very marked growth	
Creolin	1 "	No growth	"	"	No growth	"
Trikresol	1 "	"	"	"	"	"
Chinosol 10% sol.	2 "	"	"	"	"	"

SERIES A—Number 7.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cassia	1½ minims	Slight growth	Slight growth	Growth	Not examined	Not all soluble
Oil Cinnamon	1½ "	No growth	"	"	"	"
Oil Peppermint	1½ "	"	"	"	"	"
Oil Cloves	1½ "	Slight growth	"	"	"	"
Oil Cajuput	1½ "	No growth	"	Good growth	"	Soluble
Black's I, II, III	1½ "	Slight growth	"	Slight growth	"	"
Oil Wintergreen	1½ "	Growth	Growth	Good growth	"	Not all soluble
Oil Eucalyptus	1½ "	"	"	"	"	Soluble
Oil Cedar	1½ "	No growth	No growth	No growth	"	"
Oil Cade	1½ "	"	"	Growth	"	"
Oil Birch Tar	1½ "	"	"	"	"	"
Melted Crystals Carbolic Acid	1½ "	Slight growth	Growth	"	"	"
Pure Beechwood Creosote	1½ "	"	"	"	"	"
Campho-Phenique	1½ "	Growth	"	"	"	Not all soluble
Controle		"	Good growth	Very marked growth	"	

SERIES A—Number 8.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cassia	2 minims	Slight growth	Slight growth	Growth	Not examined	Not all soluble
Oil Cinnamon	2 "	No growth	"	"	"	"
Oil Peppermint	2 "	"	"	"	"	"
Oil Cloves	2 "	Slight growth	"	"	"	"
Oil Cajuput	2 "	No growth	"	"	"	"
Black's I, II, III	2 "	Slight growth	"	"	"	Soluble
Oil Wintergreen	2 "	Growth	Growth	"	"	Not all soluble
Oil Eucalyptus	2 "	"	"	"	"	Soluble
Oil Cedar	2 "	No growth	No growth	No growth	"	"

SERIES A—Number 8. Continued.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Oil Cade	2 minims	No growth	No growth	No growth	Not examined	Soluble
Oil Birch Tar........	2 "	"	"	"	"	"
Melted Crystals Carbolic Acid....	2 "	Slight growth	Slight growth	Slight growth	"	"
Pure Beechwood Creosote.........	2 "	"	"	"	"	"
Campho-Phenique ...	2 "	Growth	Growth	Good growth	"	Not all soluble
Controle		"	Good growth	Very marked growth	"	

SERIES A—Number 9.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 120 hours.	Remarks.
Oil Cassia	2½ minims	Not examined	Slight growth	Growth	Marked growth	Not all soluble
Oil Cinnamon........	2½ "	"	"	"	"	"
Oil Peppermint......	2½ "	"	"	"	"	"
Oil Cloves...........	2½ "	"	"	"	"	"
Oil Cajuput.........	2½ "	"	"	"	"	"
Black's I, II, II......	2½ "	"	"	"	Good growth	"
Oil Wintergreen	2½ "	"	Growth	"	Marked growth	"
Oil Eucalyptus.......	2½ "	"	"	"	Good growth	"
Oil Cedar	2½ "	"	No growth	No growth	Growth	"
Oil Cade.	2½ "	"	"	"	"	Soluble
Oil Birch Tar........	2½ "	"	"	"	No growth	"
Melted Crystals Carbolic Acid ...	2½ "	"	Slight growth	Growth	Growth	"
Pure Beechwood Creosote	2½ "	"	"	Slight growth	"	"
Campho-Phenique ...	2½ "	"	Growth	Growth	Marked growth	Not all soluble
Controle			Good growth	Marked growth	"	

Series A was abandoned here because all the oils were carried beyond the point of saturation. Where any doubt existed fresh inoculations were made and findings confirmed.

SERIES B.

In Series B the agents used were diluted with alcohol and organisms were mixed cultures from the mouth direct, otherwise the same as Series A.

SERIES B. (Diluted with Alcohol.)

Number 1. 90 per cent alcohol.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.		Remarks.
Oil Cassia	3 drops	Growth	Good growth	Very marked growth		
Oil Cinnamon.........	3 "	"	"	"		
Oil Peppermint......	8 "	"	"	"		Not all soluble
Oil Cloves...........	6 "	"	"	"		"
Oil Cajuput..........	6 "	"	"	"		"
Black's I, II, III......	14 "	"	"	"		
Oil Wintergreen	8 "	"	"	"		Not all soluble
Oil Eucalyptus	7 "	"	"	"		
Oil Cedar............	3 "	"	"	"		
Oil Cade.............	3 "	"	"	"		
Oil Birch Tar.... ...	3 "	"	"	"		
Melted Crystals Carbolic Acid....	18 "	"	"	"		
Pure Beechwood Creosote.	5 "	"	"	"		Not all soluble
Campho-Phenique....	8 "	"	"	"		
Controle						
Alcohol..............	26 "	"	"	"		

SERIES B. (Diluted with Alcohol.)

Number 2. 80 per cent alcohol.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 144 hours.	Remarks.
Cassia	3 drops	Growth	Good Growth			Not all soluble
Cinnamon	3 "	"	"			"
Peppermint	8 "	"	"			"
Cloves	6 "	"	"			"
I, II, III.............	14 "	"	"			"
Carbolic Acid.......	18 "	"	"			"
Creosote	5 "	No Growth	Growth			"
Alcohol	52 "	"	"			Soluble

SERIES B. (Diluted with Alcohol.)

Pure Cultures Again. Number 3. 60 per cent alcohol.

Cassia...............	3 drops	Not examined	Growth	Good growth	Marked growth	Not all soluble
Cinnamon	3 "	"	"	"	"	"
Peppermint	8 "	"	Slight growth	"	"	"
Cloves..............	6 "	"	Growth	"	"	"
I, II, II............	14 "	"	"	"	"	"
Creosote	5 "	"	No growth	"	"	Soluble
Carb. Acid	18 "	"	Slight growth	"	"	"
Alcohol.............	75 "	"	Growth	"	"	"

SERIES B. (Diluted with Alcohol.)

Number 4. 60 per cent alcohol.

Medicament used.	Amount of Medicament used.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.		Remarks.
Cassia..............	5 drops	No growth	Slight growth	Growth		Not all soluble
Cinnamon...........	5 "	"	"	"		"
Peppermint	10 "	"	"	"		"
Cloves	8 "	"	"	"		"
I, II, II..............	20 "	"	"	"		"
Creosote	8 "	"	"	"		"
Carbolic Acid........	20 "	"	"	"		"
Alcohol	80 "	"	"	"		"

This Series was abandoned here as being useless, on account of the inaccuracy of the finding.

Following Series B an effort was made to use solutions of soap bark as a means of making agents more soluble in the bouillon, but this was found impracticable for the reason that even then sufficient of the oils could not be incorporated in the bouillon to stop growth.

SERIES C.

The method in Series C was as follows, and is a modification of method suggested by McFarland: ⅛ inch square pieces of thin filter paper were sterilized carefully in dry heat and kept in covered petri dish. The bacteria were pure cultures of staphylococcus carefully distributed throughout the culture media as before. One loopful was taken out and placed on the square of filter paper and allowed to dry in the petri dish. Afterwards ¼ minim of the agents used was transferred to the inoculated piece of filter paper (which was found sufficient to completely cover it). This was allowed to remain in the petri dish for various lengths of time as indicated by the tables, then, after washing, the pieces of filter paper were transferred to fresh nutrient media and placed in the incubator. The tables are otherwise self-explanatory.

SERIES C—Number 1.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 36 hours.	Condition in 72 hours.	Condition in 96 hours.	Remarks.
Cassia..............	1 minute	Slight growth	Growth	Good growth		
Cloves	1 "	"	"	"		
Peppermint.........	1 "	"	"	"		
Cassia in Alcohol, 40%.	1 "	"	"	"		
Cloves " " 40%.	1 "	"	"	"		
Pepp'm't in Alco'l, 40%	1 "	"	"	"		
Controle............		Growth	Good growth	Very marked growth		

SERIES C—Number 2.

Cassia..............	2 minutes	Slight growth	Growth		Good growth	
Cloves..............	2 "	"	"		"	
Pepp'm't 40% in Alco'l	2 "	Growth	"		"	
Cinnamon (2)	2 "	"	Good growth		Marked growth	
Creosote............	2 "	"	"		"	
Carbolic Acid........	2 "	"	"		"	
I, II, III............	2 "	"	"		"	
Cinnamon...........	2 "	Slight growth	"		"	
Cajuput.............	2 "	Growth	"		"	
Eucalyptus	2 "	"	"		"	
Lysol...............	2 "	Good growth	"		"	
Campho-Phenique ...	2 "	Growth	"		"	
Birch Tar, O.........	2 "	Slight growth	"		"	
O. Cade	2 "	"	"		"	
Guaiacol	2 "	Growth	"		"	

SERIES C—Number 3.

Medicament used.	Time of exposure.	Condition 24 hours	Condition 48 hours	Condition 96 hours		
Cassia..............	3 minutes	Slight growth	Growth			
Cassia and Alcohol 40%	"	Growth	"			
Cloves..............	3 "	Slight growth	"			
Cloves and Alcohol 40%......	3 "	Growth	Good growth			
Peppermint.........	3 "	"	Growth			
Peppermint and Alcohol 40%...	3 "	"	Good growth			
Cinnamon...........	3 "	Slight growth	"			
Cinnamon and Alcohol 40%....	3 "	"	"			
Carbolic Acid.......	3 "	"	"			
Creosote	3 "	"	"			
I, II, II.......... ...	3 "	"	"			
I, II, III in Alcohol,40%	3 "	"	"			
Cajuput............	3 "	"	"			
Controle		Growth	"			

SERIES C—Number 4.

Medicament used.	Time of exposure.	Condition 24 hours	Condition 48 hours	Condition 96 hours		
Cassia..............	5 minutes	Slight growth	Growth	Good growth		
Cassia in Alcohol, 40%.	10 "	"	"	"		
Cloves	5 "	"	"	"		
Cloves and Alcohol, 40%......	10 "	"	"	"		
Peppermint	5 "	"	"	"		
Peppermint in Alcohol, 40%...	10 "	Growth	"	"		
Cinnamon	5 "	Slight growth	"	"		
Cinnamon in Alcohol, 40%....	10 "	Growth	"	"		
Carbolic Acid........	5 "	"	"	"		
Creosote	5 "	"	"	"		
I, II, III............	5 "	Slight growth	"	"		

SERIES C—Number 4. Continued.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 48 hours.	Condition in 96 hours.	Condition in 144 hours.
I, II, III in Alcohol, 40%	10 minutes	Growth	Growth	Good growth	
Cajuput	10 "	"	Good growth	Marked growth	
Campho-Phenique ...	10 "	"	"	"	
Lysol...............	5 "	"	"	"	
Birch Tar	5 "	"	"	"	
Cade...............	10 "	"	"	"	
Controle...........		"	"	"	

SERIES C—Number 5.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 48 hours.	Condition in 96 hours.	Condition in 144 hours.
Creolin	10 minutes		No growth	No growth	No growth
"	15 "		"	"	"
"	20 "		"	"	"
Trikresal	10 "		"	"	"
"	15 "		"	"	"
"	20 "		"	"	"
Campho-Phenique ...	10 "		Good growth	Good growth	Very marked growth
" ...	15 "		"	"	"
" ...	20 "		"	"	"
" ...				"	"
Guaiacol............	10 "		"	"	"
"	15 "		"	"	"
"	20 "		"	"	"
Chinasol 1 per cent...	10 "		No growth	No growth	No growth
" ...	15 "		"	"	"
" ...	20 "		"	"	"
Alcohol	25 "		Good growth	Good growth	Very marked growth
Controle............			"	"	"

SERIES C—Number 6.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 48 hours.	Condition in 72 hours.	Condition in 120 hours.	Remarks.
Cassia.	10 minutes	No growth	Not examined	Slight growth	Growth	
"	15 "	"		"	"	
"	30 "	"		"	"	
Cinnamon	10 "	"		"	"	In 8 days these grew
"	15 "	"		"	"	
"	30 "	"		No growth	Slight growth	
I, II, III	10 "	"		Slight growth	Growth	
"	20 "	"		No growth	No growth	Growth
"	30 "	"		"	"	No growth
Peppermint	10 "	"		Slight growth	Good growth	
"	20 "	"		No growth	"	
"	30 "	"		"	"	
Cloves	10 "	"		Slight growth	"	
"	20 "	"		"	"	
"	30 "	"		No growth	No growth	Growth
Cajuput	10 "	"		Slight growth	Good growth	
"	20 "	"		"	"	
"	30 "	"		No growth	Slight growth	
Creosote	10 "	"		Good growth	Good growth	
"	20 "	"		"	"	
"	30 "	"		"	"	
Carbolic Acid	10 "	"		"	"	
"	20 "	"		"	"	
"	30 "	"		"	"	
Eucalyptus	10 "	"		"	"	
"	20 "	"		"	"	
"	30 "	"		"	"	
Controle		Growth		"	"	

It will be noticed that several in Series C, No. 6, were restrained for twenty-four hours, and a few seventy-two hours, but all except I, II, III grew before eight days. Where there was any doubt drop examinations were made and confirmed by fresh inoculations.

SERIES C—Number 7.

Medicament used.	Time of exposure.		Condition in 48 hours.	Condition in 120 hours.		
Cassia...............	35 minutes		No growth	Growth		
"	40 "		"	"		
Carbolic Acid........	40 "		Good growth	Good growth		
"	45 "		"	"		
Creosote	40 "		"	"		
"	45 "		Growth	Growth		
Eucalyptol	45 "		Good growth	Very marked growth		
Trikresol............	5 "		No growth	No growth		
Creolin.	5 "		"	"		
Trikreasol...........	1 "		"	Slight growth		
10% Chinasol.........	5 "		No growth	No growth		
Creolin..............	1 "		"	"		
10% Chinasol.........	2 "		"	"		
Controle.............			Good growth	Very marked growth		

SERIES C—Number 8.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 72 hours.	Condition in 96 hours.		
Cassia...............	50 minutes	No growth	No growth	Slight growth		
"	60 "	"	"	"		
Cinnamon	50 "	"	"	"		
"	60 "	"	"	"		
Carbolic Acid........	50 "	"	Growth	Good growth		
"	60 "	"	"	"		
Creosote......	50 "	"	No growth	No growth		
"	60 "	"	"	"		
"						

SERIES C—Number 8. Continued.

Medicament used.	Time of exposure.	Condition in 24 hours.	Condition in 72 hours.	Condition in 96 hours.		
Cloves	50 minutes	No growth	No growth	Slight growth		
"	60 "	"	"	"		
Lysol.	50 "	"	Growth	Good growth		
Chinasol 1%..........	1 "	No growth	No growth	No growth		
Creolin	3 "	"	"	"		
Trikreson	3 "	"	"	"		
Creolin	5 "	"	"	"		
Controle.............		Growth	Good growth	Very good growth		

By a little comparison you will notice that all the essential oils failed to destroy the staphylococcus when in contact for sixty minutes while trikresol did in three minutes, and ten per cent solution chinasol did in one minute, and creolin destroyed in one minute.

From the above experiments I feel confident in saying the antiseptic and disinfectant power of the essential oils has been greatly overestimated, and the difference between their disinfecting power is very little.

REPORT OF THE SUPERVISORS OF CLINICS.*

BY J. E. HINKINS, D. D. S., CHICAGO, ILL.

DR. P. A. PYPER, PONTIAC, ILL.: No. 2.—Contour Filling, Platinum and Gold, Upper Right Lateral Incisor.—This was a compound proximate cavity, having a step including a portion of the incisal edge and a dovetail on the lingual near the cervical angle, which latter was rendered necessary in order to include the lingual pit. The tooth was very frail and the cavity had some weak points, but under the circumstances the completed filling was probably all that could be desired.

DR. J. N. McDOWELL, CHICAGO: No. 4.—Orthodontia; Models and Regulating Appliances.—This clinic on orthodontia illustrated the result of treatment of malocclusion after maturity, ranging from the age of 28 to 40, showing the changes of the position of the teeth that have been accomplished, and the appliances and retainers that were used on these cases. Also photographs illustrating the possible changes that could be made in patients at this age.

DR. F. E. ROACH, CHICAGO: No. 5.—Removable Facing of His Own Design.—I consider it an excellent thing in cases where indicated. It is now in the process of manufacture, and will be on the market for general use shortly, and I think it is worthy of a prominent place in prosthetic dentistry.

DRS. A. J. ELMER OF ROCHELLE, AND T. W. BROPHY OF CHICAGO: No. 7 and 8.—The clinicians were both present but were unable to procure patients.

DR. W. F. GREEN, SOUTH EVANSTON, ILL: No. 9.—Table Clinic—Canal Filling—Eucalypto-percha.—He first dissolves gutta-percha in chloroform, allowing it to stand a sufficient length of time to become thoroughly dissolved; and then adds eucalyptus to the chloro-percha, allowing the chloroform to evaporate through antiseptic gauze and gradually adding more eucalyptus until the mass is of the proper consistency. While this method is not new, he claims that by so doing he gets the gutta-percha into a more finely comminuted form than could possibly be done by the simple use of eucalyptus. By the aid of the microscope, the mass, to all appearances, is much more homogeneous than is chloro-percha. It is used in filling root-canals in the usual manner, being pumped in thoroughly and followed by a gutta-percha point.

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*Read before the Illinois State Dental Society.

Dr. G. W. Cook, Chicago: No. 10.—Surgical treatment of Pyorrhea Alveolaris.—The clinic consisted on the removal of the calcific deposits, using Thompson's scalers, followed by the use of Argentimi, (which is a preparation of silver and an albuminous substance) for the treatment. The clinic was very interesting.

Dr. Lee K. Stewart, Chicago: No. 11.—Continuous Gum Case.—This clinic demonstrated the use of rubber teeth for continuous gum cases where the case demands the use of a long bite tooth, being especially desirable where the lingual bite of continuous gum teeth is too short. The teeth are soldered to the plate by means of "dutchmen," to take the place of the long pins. Instead of extending the body over the entire lingual surface, as is usually done, which in this case would make the plate exceedingly heavy and cumbersome and impede the free movement of the tongue, Dr. Stewart solders a wire around the linguo-palatal surface of the plate, (the same as in a gold plate), and allows the body to extend only that far, thus leaving the entire palatal surface free. I consider it a very commendable method in cases with exceedingly long bites, where the posterior border is well reinforced.

Dr. J. E. Nyman, Chicago: No. 12.—Dr. Nyman demonstrated the method of carving solid gold cusps as explained in his paper. The clinic was both interesting and instructive.

Dr. W. V-B. Ames, Chicago: No. 13.—Some elements under the microscope.—I have examined a good many of these cements under the microscope and the density of them is of very great importance, as well as the porosity of others; showing a marked difference in the composition of different cements. It is well worthy of serious consideration.

Dr. J. R. Rayburn, Fairbury, Ill.: No. 14.—Gold filling; mesio-occlusal cavity in upper right first molar.—The cavity was prepared according to the teaching of Dr. C. N. Johnson, as the clinician interprets it. The filling was started with Moss Fiber gold and finished with Rowan's cohesive pellets, using the automatic mallet in the gingival two-thirds and Power's engine mallet in completing the filling. The operation speaks for itself and needs no commendation.

Dr. M. L. Hanaford, Rockford, Ill.: No. 15.—Gold filling in distal surface of upper left cuspid, using Nelms cylinders and hand mallet.—The preparation of the cavity and the finished filling were all that the most critical could desire.

DR. ROBERT GOOD, CHICAGO: No. 19.—Dr. Good demonstrated his treatment of pyorrhea alveolaris, using the Younger method and the instruments of Dr. Younger's design for removing the deposits. Dr. Good uses lactic acid after the deposits are thoroughly removed and washed out of pockets. If the teeth are loose he always ligates them with sewing silk about No. B, after that treating it as a surgical case. He carries cocaine to the bottom of the pockets with an instrument, but does not use it hypodermically. He also keeps his instruments in an antiseptic solution while operating.

DR. C. N. THOMPSON, CHICAGO: No. 21.—Porcelain Inlay.—Dr. Thompson showed a very beautiful porcelain inlay filling in the mesial corner of a left central incisor, in the mouth of Dr. A. B. Howatt, and demonstrated the method he uses in securing a die and counter-die for swaging matrix. The inlay was made of high-fusing body and the clinic successful.

DR. F. F. FLETCHER, ST. LOUIS, MO: No. 22.—Gold fillings without use of rubber dam.—Two buccal cavities in upper left second and third molars, one filled with Moss Fiber gold and the other with Fowler's New Process gold. The result seemed to be all that could be desired.

DR. L. W. NEVIUS, CHICAGO: No. 25.—The use of Nitrous Oxid in extracting teeth.—Dr. Nevius extracted a right superior third molar, a left inferior first molar, very badly decayed and broken down, a second superior left molar and the root of a first superior left bicuspid; also the removal of a lower second bicuspid and a lateral incisor for the purpose of correcting an irregularity, demonstrating the use of his new forceps with one narrow beak. Dr. Nevius would like to have secured a more difficult case, but was unable to do so, and the clinic was very successful.

DR. A. G. JOHNSON, CHICAGO: No. 26.—Cleavage of enamel preparatory to crowning, using instruments of clinician's own design.—They are made in three forms, two for forward and backward cutting and one designed especially for cleaving the enamel from the mesial surfaces of lower molars. I consider them all exceedingly practical and most excellent for the purpose intended, and I think every conscientious crown worker should have them.

DR. WM. O. HULICK, CINCINNATI, OHIO: No. 27.—Dr. Wm. O. Hulick, of Cincinnati, Ohio, gave a very interesting and profitable clinic on the Mason Detachable Tooth Crown, for fixed replacements. This system is not new to the dental profession, having been adopted by many dentists with great satisfaction. The most important feature, perhaps is the easy repair in case of a fracture, which can be accomplished in a few minutes without the trouble of removing the piece, making it as perfect as before fracturing. Among the many other valuable features the Doctor called attention to, in the construction of various crowns and bridges, was the all porcelain molar and bicuspid crowns. He makes a "shoe of gold" circulating three-fourths of the facing, for it to slide into, making the bridge both artistic and durable; also a perfect porcelain grinding surface, which he claims is far better than a metal grinding surface, at the same time getting rid of the objectionable display of gold.

Dr. G. V. Black, Chicago: No. 28.—Manudynamometer.—Dr. Black was called home on account of the death of his brother and the report of his clinic will appear in the transactions.

Dr. C. A. Palmer, Grinnell, Iowa: No. 29.—Demonstrating the Palmer Plastic Swager and Moulding Flask.—He claims:

1st. It overcomes the difficulty of undercuts both in separating the model from the sand and in swaging.

2nd. Results are much more accurate, as the final work is done on the plaster cast.

3rd. The process is shortened in every way. A metal counter-die is not used and cores are unnecessary in securing the metal die.

4th. The metal is kept free from marring through the swaging.

While there seems to be but little, if any, advantage gained by using the plaster model, there is an advantage in swaging between the die and a softer, more yielding surface. His flask is somewhat of a modification of the Hawes sectional flask, with which the use of cores may oftentimes be unnecessary.

Dr. C. R. Taylor, Streator, Ill.: No. 30.—Dr. C. R. Taylor of Streator, Ill., presented models of the upper and lower jaws of a young man 20 years of age showing the mal-formation and occlusion in consequence of premature extraction of the deciduous molars, which was very interesting.

Dr. C. N. Johnson showed a compound proximal gold filling with tin and gold in the gingival third, in the posterior surface of an upper second bicuspid, in the mouth of Dr. W. F. Green, inserted at a clinic in 1894, which was still in perfect condition.

Dr. Johnson also showed two compound proximal gold fillings in the mouth of Dr. W. A. Johnston of Peoria, inserted five years ago at a clinic. Both were still in splendid condition.

Dr. C. P. Pruyn showed two large amalgam fillings inserted at a clinic of this Society two years ago in the mouth of Dr. W. A. Johnston, both of which were in excellent condition.

Dr. R. H. Kimball showed two compound proximal gold fillings in the same mouth, inserted one year ago before this Society, both of which also looked very fine.

Clinician's Nos. 3, 18 and 20 were unable to attend on account of illness in their families.

The rest of the clinicians who have not appeared are deserving of criticism unbecoming a member of our noble profession. I wish to thank the local committee for their able support in behalf of this meeting.

OXY-PHOSPHATE OF COPPER CEMENT.*

By ELLIOTT R. CARPENTER, D. D. S., CHICAGO, ILL.

I have watched with considerable interest for the past three years the behavior of Oxy-Phosphate of Copper as a filling material in the mouths of many of my patients, and take great pleasure now in reporting to this Society the results of my observation and experience with it.

To Dr. W. V-B. Ames the profession is indebted for the discovery of Oxy-Phosphate of Copper, and it was placed upon the market about 1891, but owing to the intense prejudice on account of its color it was little used by the profession until after Dr. Ames gave a clinic on it before the Illinois State Society at Springfield, about 1894.

Oxy-Phosphate of Copper Cement is as black as coal-tar, which it closely resembles after crystallization has taken place. It is composed of Oxide of Copper mixed with Phosphoric Acid. The manipulation is entirely different from any of the other cements, inasmuch as it crystallizes very rapidly at ordinary temperature. It is necessary, therefore, to mix it on a cold surface and the simplest method for this purpose is to use a large square bottle filled with cold water as a mixing slab, putting a little more than the desired amount of fluid and powder on this cold slab. It is mixed and ground with a sweeping motion of a large spatula, forward and backward, until all the gritty feeling of the mass has been reduced to a smooth, creamy consistency, and is then ready for introduction into the cavity; it being just thick enough to flow slowly from the end of an instrument. Being black in color it goes without saying it is contra-indicated in the anterior part of the mouth.

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*Read before the Odontological Society at Chicago, March 27, 1900.

Oxy-Phosphate of Copper is especially good where it is desirous of temporizing as in cases of old, broken-down molars, or in the case of pregnant women where the shock of excavation and drilling of retaining points is to be avoided. And it is especially efficacious in many of the inaccessible cavities in the posterior surfaces of the third molars, and I am pleased to report a goodly number of such cases that after three years are still doing good service.

Buccal cavities in third molars, especially those dipping well down below the free margin of the gum, and closely encroaching upon the pulp, are also good cases because Oxy-Phosphate of Copper when brought in contact with the slight moisture of a carious tooth precipitates a Salt of Copper that is in itself a powerful germicide so that it is only necessary to excavate there superficially with large spoon instruments the softest portions of decay in these cavities. No doubt you are thinking, why try and save so many of these mal-opposed third molars, which are so poor in structure and difficult of access as to preclude more permanent operations? We all have many patients who will say: "Oh, well! It is only an old wisdom tooth; when it begins to ache I will have it extracted." But during the interim those patients are harboring an unsanitary pestilence in their mouths, and affording an excellent breeding place for micro-organisms. This in itself should be sufficient reason for at least temporizing with Oxy-Phosphate of Copper; if temporizing it be to restore such teeth to health, if for only two or three years. On the other hand we have many patients, especially women having long, narrow faces, who seriously object to the extraction of third molars because it is liable to produce a change in facial contour, and when alveolar absorption has taken place, producing a sunken or hollow appearance of the cheek directly opposite the molar extracted. Such sentiment on the part of our patients I consider worthy of our most serious efforts, inasmuch as the preservation and reproduction of facial contour is one of the highest aims of our profession of to-day.

In the deciduous teeth of children I find my greatest pleasure in the use of Oxy-Phosphate of Copper for several reasons; little children coming for the first time to a dentist are very apt to be easily frightened, and if made to endure much, if any, physical pain will lose confidence in the operator, and have intense dread and fear of dental operations for many years following. If, on the other hand, they can be interested in the different stages of the operation, the instruments, and the ultimate resulting filling, a bond of sympathy and friendship can be established between the operator and the tiny patient, resulting in the supremest confidence until the little one comes to recognize you as a friend and benefactor, and is really pleased when the time comes to make you a visit.

Since Johnson & Johnson have put upon the market their Absorbent and Non-Absorbent Cotton Rolls, put up in boxes of assorted sizes, I have discarded the old-fashioned mouth napkin in working for these little ones. If the cavities be in teeth in the inferior maxilla, I will place a medium sized cotton roll between the tongue and teeth to be operated upon, a similar cotton roll at the buccal surfaces, and a small roll well up over the duct of steno, allowing the child to hold the saliva tube in the mouth, as it gives them something to think about, and while my assistant mixes the cement I quickly dry and superficially excavate the cavities and flow the cement into them. If the little one by this time is not too restless I prefer to assist crystallization by the aid of warm air blown gently over the whole surface of the fillings, as both experience in the mouth, and experimentation on fillings in teeth out of the mouth have demonstrated beyond the shadow of a doubt in my mind that fillings crystallized in this way become much harder than where a large stream of hot water is used for the same purpose.

I have had in my practice this past year a case of pyorrhœa alveolaris where the roots of the first, second and third molars on the right side of the inferior maxilla were denuded from their bifurcations fully one-half their length, forming the most convenient lodging-place for partially masticated food, which upon disintegration became foul and putrescent, causing the most intense inflammatory condition of the gum tissue at this point, and the tooth to elongate and become very lame. After battling to overcome this condition for several months I became almost discouraged, when it occurred to me that wherever I had observed the condition of gum tissue in contact with Oxy-Phosphate of Copper Cement in buccal or other cavities I found it always pink in color, hard, and healthy to the touch, so I thought that it might be a good thing to fill in the space between these denuded roots, thus excluding the lodgment of food and other irritating or foreign substances.

This one particular case I have seen about twice a month for the past three months, and have neither scaled nor treated the roots during that period. The lameness complained of by my patient has entirely subsided, and the gum tissue in contact with the Oxy-Phosphate of Copper is hard and healthy. I have only this one case to report at present, but consider this method worthy of your attention. I will add that it is very important that the roots of molars to be so treated must be first thoroughly scaled, cleansed, and antisepticized, and the space free from blood before filling it in.

Since writing this paper I find that Oxy-Phosphate of Copper can be mixed on an ordinary cement slab, but if so mixed it must be done quickly and used at once or it will set before it can be placed into the desired cavities.

ELLIOTT R. CARPENTER.

EXTRACTION AND REPLANTATION; A CURE FOR PYORRHEA ALVEOLARIS AND CHRONIC ALVEOLAR ABSCESS.*

BY R. J. CRUISE, D. D. S., CHICAGO, ILL.

It is perhaps a misfortune that I must open my maiden effort at a paper before a dental society with an apology, which looks like an attempt to cover my inability or a cloak for my ignorance; however, an apology seems somewhat in place here, as I am about to talk upon a subject which neither my experience as a practitioner nor my practical acquaintance with warrants my posing in the attitude of an essayist.

When requested some time ago to read a paper before the society, fully conscious of the fact that I could not offer you anything new or original or anything that could be particularly interesting or instructive, I elected to write upon the extraction and replantation of teeth as remedies for pyorrhea alveolaris and chronic alveolar abscess, in the hope that the discussion which would follow my remarks might throw some light upon a subject which I think deserves consideration, and bring forward some information of value to my listeners and myself.

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*Read before the Odontographic Society of Chicago.

I do not suppose that there is any practitioner of even the most limited experience who has not either replanted a tooth, had the opportunity to do so, or at any rate considered the possible success attending such an operation. Yet when brought face to face to the opportunity, our patient in the chair and the question arises extract the tooth and consign it to destruction, treat the tooth for months with the question of ultimate success, a decided hypothesis, or calling upon our persuasive ability and gaining the patient's consent to extract the tooth and replant it, with confidence that our operation will very probably meet with success. How many will decide upon the latter course. Needless to say I do not refer to the ninety cases in one hundred where the treatment of the tooth is the proper method, and this radical one entirely uncalled for, but I refer to the other ten where the treatment of the tooth is an imposition upon both our patients and ourselves, while extraction and replantation would most probably be followed by the salvation of the tooth and a goodly measure of satisfaction and glory for the operator.

Some will reply that it is easy to talk and write about, but not so easy to accomplish with success. To those I can only reply that from all I have seen and read of the operation supplemented by my own necessarily limited efforts in this direction, the operation is essentially simple, skill required for its accomplishment practically at the minimum, and with scrupulous attention to asepsis and detail in the operation success is nearly always assured.

I will now give a few reasons why, generally speaking, a prognosis is good in the condition where the operation is indicated, and why and when we should be induced to perform it in the two classes of disease spoken of.

In the first place, we know there is no bone that heals so readily as the alveolar process, which in so far reminds us that nature is decidedly in favor of the operation.

Secondly, the pathological degenerations present in cases calling for the operation practically exclude a cure by any other means. Briefly, to consider them in pyorrhea we have to deal with the worst of those cases which come under the second condition of pyorrhea where we have to contend with the deep pockets in the alveolus, the dense gritty nodules attached to the side of the root already denuded of part of its pericemental membrane, absorption of the end of the root and the looseness consequent to these conditions. In that worst condition of pyorrhea, where we have not necessarily the condition present mentioned above, but where some vicious constitutional state prevents the eradication of the disease and the absorption of the alveolus is very extensive, our radical operation will probably prove as useless as treatment.

Recalling briefly the conditions to be dealt with in cases of chronic alveolar abscesses, we are reminded of the thickened condition of the peridental membrane which we generally find more or less injected and covered with patches of lymph. In the same situation are frequently found masses of fibrous tissue and hypertrophied membrane which are undergoing ossification at a point of junction with the cementum. Then we have the condition of excementosis and alveolar necrosis, we have the secondary pockets of infection or the foci of infection along the sides of the roots where there were Haversian canals penetrating to the pulp through the dentine, or we have that condition in which the inflammation is of a low, indolent, subacute nature in which neither resolution nor active suppuration can by any of the usual means be brought about.

A reason for extraction and replantation as a cure immediately suggests itself in the ease with which we can treat and dispose of these conditions out of the mouth as compared with the difficult task of endeavoring to treat them in the mouth.

In this connection it might not be out of place to mention that the operation is eminently indicated in those cases of chronic alveolitis which are the sequence to some operators' ambition to reach the apical foramen with a drill where neither operator nor drill could see, and the side of the tooth is perforated as a result. Barbed broaches which go up never to return but which sometimes bring about most distressing conditions are easily removed in the course of this operation.

Humanity suggests another reason for the operation, which, while not entirely painless, dispenses with long, tedious sittings remembered only for their pain and failure.

Fifthly, in pyorrhea, in cases where the operation is indicated, in which a great deal of trouble may be in the alveolus, the cause is in the tooth; remove the cause, replace the tooth and the alveolus will take care of itself, proving that the trouble is not due to an independent morbid condition of the investing bone.

Another reason lies in the fact that it is something comparatively novel to the laity; if the outcome is successful, it necessarily brings a goodly measure of glory to the dentist. As regards the responsibility for success, I think that a distinct understanding should always be had with the patient, particularly when the operation is performed for alveolar abscess, that it is undertaken more or less as a last resort to obviate the necessity of more extensive work in supplying an artificial substitute, and if the chances are that the tooth will give service for some years, thus postponing the work of destruction which prosthesis will call for, we are fully justified in our undertaking. Another reason, if I may be allowed to allude to it in this connection, lies in the practical fact that we can receive a fee for the operation to-day and there still remains an opportunity of professional remuneration for you or one of your confrérés when the tooth has fulfilled all the possibilities which nature, science and art could supply and the day arrives for it to return to the dust from whence it came.

Other reasons may suggest themselves to you and to me, but those I have mentioned seem to embrace the principal ones, so I shall not take up any more time discussing them, and I shall now conclude by giving you in some detail some of my personal experiences in this matter which will bring up some of the practical steps in the operation.

My first experience in the replantation of teeth calls for a somewhat humiliating confession. The case is not exactly apropos here as the tooth was not replanted for either pyorrhea or alveolar abscess, but as it brings up a point of interest I will briefly give the particulars. To begin with it happened to me when I was a student. In an effort to remove the roots of a lower first molar and a simultaneous effort on the part of my young patient to remove himself from the chair, I dislodged the lower second molar. Much confused by my misfortune and ignorant of what to do in the dilemma, I removed the tooth from the mouth and on examination found that the nerve in both mesial and distal roots protruded nearly one-sixteenth of an inch from the apical foramen. I had read or heard of a tooth being replanted without the removal of the nerve, and a complete union taking place, and not being prepared to take the steps in the orthodox manner for the replanting and retaining of a tooth, I succeeded in removing the roots of the first molar, washed out the bleeding socket from which the second had been dislodged and carefully replaced the tooth. As a temporary means to prevent any occlusion on the tooth, I cemented a band on the upper bicuspid into which I fitted a small piece of cork. Next day I replaced this with temporary caps on the teeth on the opposite side. I fitted a band around the replanted tooth and the second bicuspid, soldered bars connecting the two and cemented this on as a retaining appliance. In a very short time, to my pleasure and surprise, all soreness had passed away, and about four months from the date of the replanting I removed the appliance. The tooth had given no trouble and was firm enough to allow of occlusion. I did not see the patient for about nine months, when he came to me one day to inform me that the tooth seemed loose and crooked but otherwise had given no trouble. I found it a little loose and bending forward toward the bicuspid. Somewhat curious to know the condition of that nerve and believing that the best chance to steady the tooth and retain it as a useful member would be to attach it to the bicuspid with a bridge, I decided to open into it. Well, I found the nerve alive and with the assistance of cataphoresis I removed it. I put on the bridge and when last I heard from it was giving no trouble and much comfort.

I have told this to some who have replied, partly in jest, partly in earnest, that my experience was only a dream. However, it was a dream which occurred to me while I was awake, and it has grown to me to be less of a surprise as the time goes by, for in the past year I have heard of two parallel cases—one the experience of a patient of mine who some seven years ago fell when skating on the ice and knocked out the right upper central. He picked it up and replaced it in its socket, and to-day it responds most beautifully to the tests for vitality.

As I have said, these cases are not exactly in point, but they show us how kind nature is in effecting union where conditions are healthy. Here I presume everything returns to normal condition by a simple restoration of function, but by what process a new growth takes place, I do not know nor I have not been able to find out. What remains healthy I presume is restored to function, but by what process a new growth takes place or what its appearance would be from a histological standpoint I have not been able to ascertain. I believe that some experiments in this direction have been carried on lately by some of the votaries of the operation, and we shall be pleased to get any information upon them to-night.

My first experience in the replanting of a diseased tooth was a little over two years ago. The patient was suffering considerable annoyance from an upper left second bicuspid, the seat of a chronic alveolar abscess of three years' standing. Examination showed that a hole had been drilled through the side of an evidently crooked root, the tooth had been treated for several weeks, three different times had been filled and crowned, always with recurring trouble, soreness and looseness. I decided on an effort at replanting, first fitting a crown to the root which I took off the occlusion altogether. I then took a piece of banding material, such as is used in regulating work, and made a band which fitted snugly around it, and the adjoining teeth, burnishing it in toward the interproximal spaces; with this in place I then took an impression and on the band in place on the model I flowed sufficient solder to thoroughly stiffen it.

When ready for the operation I prepared a dish with a saline solution of distilled water (six grains of salt to the quart), kept it at body temperature, and on the extraction of the tooth I immediately placed it in the same, keeping it there as much as possible while out of the mouth and replacing it there at intervals while working on it. With the careful and judicious use of a round bur and excavators suitable for the purpose, I removed necrosed portions of the alveolar process. If this can be done quickly and without the use of any anesthetic so much the better. I filled the roots with gutta-percha and removed from the pericementum all that seemed to take of the nature of abnormal growth. I then cemented the crown on the root, washed out the socket with the saline solution, replaced the root and cemented on the retaining appliance, the tooth not having been out of the mouth more than ten minutes. The patient was away from the city for about six months and when she returned I removed the retaining appliance, and found the tooth perfectly solid. The fistulous openings which had been discharging for three years had closed, the soreness had all passed away and the tooth was restored to utility. This, my first trial and success, has led me to experiment again, and so far none of the teeth I have replanted for chronic abscess have fallen out. I have only tried it with one molar tooth, in which case the necrosis of the process around the buccal roots was most extensive, and the condition of them so bad that I decided to excise them altogether. When I found the condition of the tooth I almost decided not to replant it, but I did so; it has given no trouble for about a year and gives promise of success.

So far the worst sequence I have had to the operation has been the death of the pulp in an adjoining tooth. This I have ascribed to a too heroic treatment of the diseased process.

Another misfortune to be looked for which occurred to me twice where I had expected to replant, was the fracturing of the root in extracting. In both of these cases the side of the root had been drilled through.

As regards the replanting of teeth for pyorrhea alveolaris I do not wish to speak from personal experience, for as yet mine has been very limited. That the operation is a success and is being performed every day, I know to be a fact, and I trust that before the evening is over some of us may be enlightened as to its greatest possibilities.

Thus do I revert back to the tone in which I began, and will conclude by reminding you that my humble effort has been spent rather that I might learn than that I might teach.

REGULATING APPLIANCES.

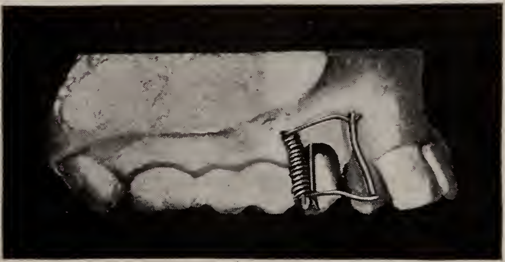
By A. E. Matteson, D. D. S., Chicago, Ill.

Since the introduction of Dr. Case's "contouring appliance," demonstrating the possibility of removing the apical third of teeth, the fact of such movement need no longer be questioned, even by the most skeptical.

The appliance herewith presented is for the purpose of performing this operation in the case of an individual tooth.

The call for this is most frequent with lateral incisors which have been reduced from an inlocked position, and when the incisive edge has been brought into its relative position, the labial surface is out of alignment. To overcome this the lateral, and perferably the cuspid, is "jacketed," the lateral having a longitudinal bar, extending as high as the tissues will permit and as close to the gum, in the ends of which notches are cut to engage and prevent the ends of the coil spring from slipping out of place.

The jacket on the cuspid has a wire staple attached longitudinally, with the free end half as far above the jacket as the bar on the lateral, with a slight hook on the end to prevent the coil from slipping off when in action, but permitting this when detached.



The end of the spring here represented as resting in front of the lateral and near the incisive end may be engaged in positions where its action might be employed in bringing another tooth into position, in which case it might necessitate a resistance bar to take its place.

The coil spring is made of hard drawn German silver, and may be made as heavy as the requirements demand.

PROCEEDINGS OF SOCIETIES.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Regular meeting, April 16, President Dr. Thos. L. Gilmer in the chair.

DISCUSSION OF DR. WHALEN'S PAPER.

(See page 749.)

Dr. C. E. Bentley: It is an imposition on me as well as on the essayist to ask me to open a discussion on so excellent a paper when I have not even seen the paper. I do not desire to criticise any of the officers of this society, but personally, I feel grieved that the program committee has not seen fit to get copies of this paper, as well as other papers, and send them to the gentlemen who are to open the discussion. I feel that I am wholly incompetent to treat this subject as it should be. The paper was a most excellent one and I feel fully repaid for having come here and listening to this splendid exposition of the subject.

As I was coming in I heard the gentleman speak of the variation mentioned by naturalists, such as Darwin and others, and the crystallization of the entire species. I have been more or less interested in this matter and it has a bearing on the subject in hand. Variations is a very peculiar study. By the study of the variations in the vegetable world we begin to get an idea as to what the variations mean in the animal world. Take a vegetable, for instance, and attempt to cross it or a fruit that is more or less crystallized and you will get innumerable varieties none of which has perhaps the sterling qualifications of the parent. If there is one that will present a reasonable appearance or, that has exceptional qualifications and you desire to fix that for commercial or other purposes, you will find a strong tendency on the part of that fruit to vary from the original type. These variations continue on and on until there seems to be a final crystallization. The lima bean, which is a species, is the result of the crossing of some other bean with another bean that came from an innumerable variety and it finally crystallized into the lima bean. The lima bean is incapable of being successfully crossed with any other bean. It seems to have crystallized and is a distinct species. I use this illustration so as to apply it to races or peoples. It may be a very far-fetched theory but I believe that all great races or peoples are the result of crossings of other peoples, the intermingling of the blood of different people. The English race to-day is made up of many nations, possibly not having carried to its finality any of the great characteristics of the parents. The Goths and Vandals were savages, more or less brutal, and if there be anything that characterizes the Anglo-Saxon race to-day, most certainly is their aggressiveness or what some might call brutality in thrashing and overpowering a weaker nation. It might be that that transmitted tendency of the Anglo-Saxon people is a trait handed down from their remote ancestors and yet while that criticism may be made by the historians who are to come, those who are to write the history of the nations of to-day, will say in the history of the Anglo-Saxon race that one of their chief characteristics in gaining territory or wealth was their aggressiveness.

This mixing of people, however, that produced the Anglo-Saxon race also produced a Gladstone, a Darwin, a Huxley, a Herbert Spencer and many others, and possibly, in view of this fact, the end justified the means.

What has been done with the lima bean has also been done with the Anglo-Saxon people, and what is possible with the lima bean, that it cannot be crossed without seriously interfering with the variations, may be possible in the intermixture of the races. My theory is that if there be an ideal state that is yet to come among the nations of peoples, it must be that there is in the chemistry of nations, or in the different inherent qualifications of peoples a qualification that is necessary for the production of the ideal man or nation by the mixture of all nations, by the throwing into the maelstrom of all nations and the product will be a grander one than any of their ancestors. We find this to be true in the animal and the vegetable worlds, and, arguing from analogy, would it not be possible that this be true of the human family?

There are some very interesting phases of this question of heredity and environment. A man by the name of Powell, I believe, has written a very interesting book on our heredity from God. He gives the history of his experiment with a crow. He had a crow hatched under a hen with a number of other eggs. After it was hatched it grew and was to all intents and purposes a chick. The crow was raised with this brood of chicks and it went to sleep under the wings of the mother-hen with the other chicks at night. That crow grew to be a chicken and assumed the habits of a chicken. One day it flew away and got into a herd of other crows and from that day on it ceased to be a chicken and became a crow. Now, Powell asks the question, if the influence of environment on that one crow was so marked that up to the time it flew away to its original family, it was practically a chick, what would have been the result if hundreds or thousands of crows had been raised in the same way, and if there was a transmitted tendency in the crows to become chicks? You can see for yourselves the influence on crow life of years and years of chicken life.

With reference to that portion of the paper that spoke of disease, I have a good deal to say with reference to the inferences that I drew from the paper as to the transmission of crime or its tendencies. If I believe anything at all I must believe this, that in spite of all the ups and downs and pros and cons of this question, I have yet an abiding faith in environment as against heredity. If I did not have this abiding faith the subject to me would look very dark indeed. I am not favorably inclined to the unsexing of criminals. I believe, on the contrary, in giving them the best environment. The number of instances cited by the author where criminals beget criminals, we have no record of what their environments were after birth.

He referred to the Jukes family, but he failed to mention the one particular influence that I invariably think of when I hear criminals mentioned. The Jukes family produced hundreds and hundreds of criminals, hundreds of imbeciles, prostitutes, etc., yet there is underlying it the very important incident which to me is a ray of hope. The wantons that were begotten by the Jukes family were numerous, the environment was of the most vicious, the impelling force of heredity with the filthy stream back of it was tremendous. There was one of these wantons, however, who after many years of debauchery sickened of her life, and there was an old charcoal driver who came down from the hills of Massachusetts in quest of a wife. He saw this woman and asked her if she would take her chances with him for good or for bad, and exacted of her the promise to be a good woman and he would be a good husband. She accepted the promise and went to the farm with the charcoal driver. She became a good and faithful wife to that man and she raised a large family of children. She suddenly came to the conviction that something was due to the fallen sister and abandoned brother, and she became the organizer of a home for fallen women in Massachusetts. It is recorded that this woman's influence was far reaching as the direct result of the environment that charcoal driver gave her.

I tell you, gentlemen, that when it comes to the question of environment and heredity I am on the side of environment all the time. Environment is a settled something. I know a gentleman, whom I revere very greatly, who said to me that the greatest environment he had when a boy was the old New York Tribune, and when at the outbreak of the Civil War he read those stirring articles of Horace Greeley, that they were the inspiration that made him throw down his ploughshare, take up his gun and fight for his country. The New York Tribune, thousands of miles away, came to this young man regularly at the end of each week, and constituted an environment which was one of the things that gave him an inspiration. You might rear a child in the most influential and most favorable circumstances, and yet it may turn out to be a criminal. The question of environment is the sum total of all of the external influences that come to an individual. Therefore, I will put environment as against heredity. My faith in humankind is based on this. Scratch the best of us where you may and you have not far to go before you find the most brutal in us. Civilization is nothing but a slight veneer that has come to us as the result of ages, not through heredity, for it has been vicious.

If we believe in the theory of variation we are the direct descendants of animals and our legacy must be vicious. What has come to us must have been the result not of our heredity but our environment. Whenever I talk of this subject, I have always to propound this little query, which each of you must answer according to your own intelligence. To-night there is born in the hut of the Comanche Indian a papoose, there is also born in the chamber of the Harvard professor a child. Transfer the Indian papoose to the home of the Harvard professor and his child into the Indian hut. What will be the influence of the surroundings upon each of these children after 20 years?

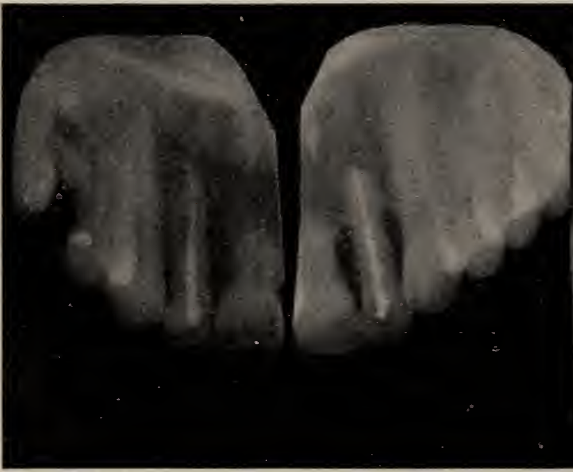
Dr. Whalen (closing the discussion). I have gone over the paper rather briefly, still I believe that I have touched upon most of the phases connected with the subject on heredity. It would have been an interesting study to have known the subsequent history of the children of the prostitute who married the charcoal driver. In spite of the good qualities that those children might have had from the father, it is highly probable that a number of these children, or their children, have fallen back into the same place that the mother occupied before her marriage. We must, of course, admit that environment had a good deal to do in her case, and under better surroundings she would have been as good a woman as the average woman.

DISCUSSION ON DR. CRUISE'S PAPER.

(See page 790.)

Dr. J. E. Keefe: While I do not agree with Dr. Cruise in some of the methods he advanced in the paper just read, I wish to congratulate him on the manner in which he presented this subject, and also on the success he has had with the teeth he replanted.

"A tooth should not be extracted for the purpose of replanting until all other methods for its relief from disease have been exhausted." To extract and replant a tooth for the purpose of curing an alveolar abscess or removing necrosed bone, I should not consider good practice, only in very rare cases. I do not wish it understood that I interpret Dr. Cruise's paper as advocating this method of treatment for the cure of all alveolar abscesses, but I believe he suggests the replanting of teeth for the cure of the more stubborn cases, or those needing surgical interference. I would probably agree with the doctor, were it not for the fact that we are enabled to determine the cause and extent of absorption of the roots of teeth or necrosed bone by the aid of the Roentgen X-ray.



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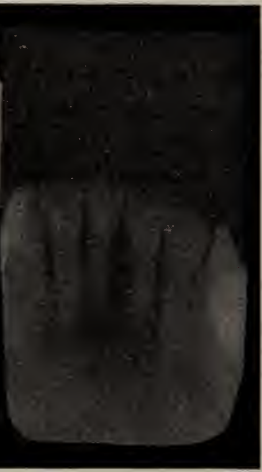

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The photographs we get show us where the trouble is, and it is a simple matter to remove all diseased bone when we know where it is diseased. Heretofore we sometimes had to guess about the conditions of bone and tooth. Under those circumstances, replanting was permissible.

To those who are not so situated that they have access to the X-ray laboratory, I would advise an attempt at removing the bone or end of the root before resorting to replantation.

There are some roots we are justified in removing. I am sorry their mention is not within the limits of this paper, and if I may refer to them while we are on the subject of replantation they may be interesting.

I refer to roots that are often extracted owing to the extensive decay or fracture under the gum tissue. We are unable to do anything with some of these roots, and often they are extracted and discarded. Whenever I have to deal with one of these cases, I first select a Logan crown to fit the space left by the missing crown, then extract the root, adjust and cement the Logan crown to it after filling the root (if it had not been filled previously), and return the root to its socket. You will be surprised at the number of years some of these roots will give service.

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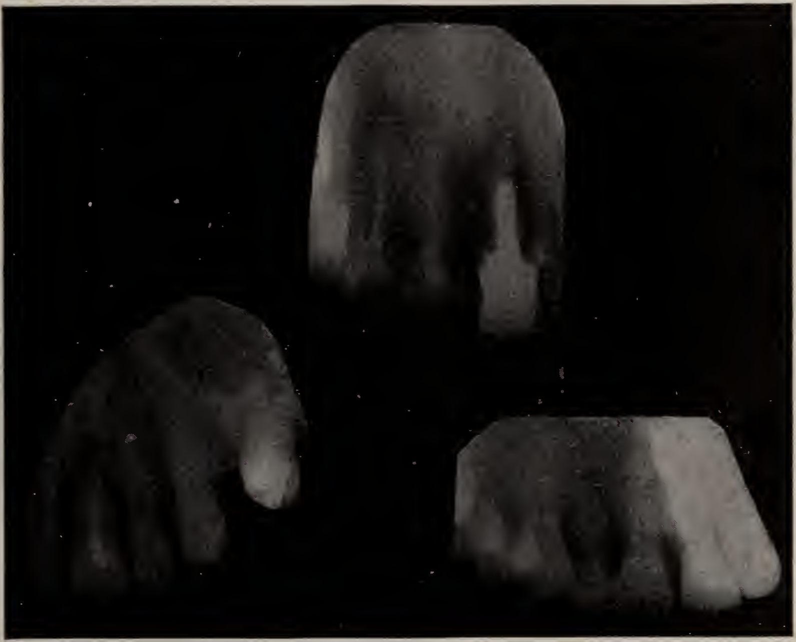

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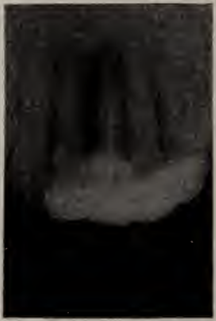
After trying a few experiments of this kind I was led to look up the literature on the subject of replantation; and to my surprise I learned that the replanting of teeth was practiced in the fifteenth century. I suppose there were from ten to twenty publications from the fifteenth century to Hunter's time, and how many since I would not attempt to guess,—suffice it to say that they all conclude to discourage the practice, owing to the failures by absorption of the roots; some few reported tetanus as a result of the operation. I believe one could not suggest a method of procedure that has not been tried by some one, and yet in the face of all these facts, with not one (that I could find) among all that have experimented in this line, to offer a word of encouragement, we still replant teeth, hoping that we may be successful where others have failed. I do believe that some one will discover how to prevent the absorption of roots or replanted teeth, and it is this same belief that is ever stimulating us to try.

Let me suggest to any of you who are doing work in this line or contemplate doing it, to first read all the literature on the subject and then, if your enthusiasm has not been chilled, do some experimenting. Try and figure out some new way of treating the roots before replanting them.

This is the way I have taken up the work. I replant all Pyorrhea teeth which are doomed. I mean by that Pyorrhea teeth which have been treated by others and myself, and do not perceptibly improve after a few months' treatment. I have not been fortunate enough to find anything in our literature on the replanting for the cure of Pyorrhea. But there is no doubt, gentlemen, about the cure of Pyorrhea by replanting, but the absorption which we expect to follow is as bad as the Pyorrhea itself.

No. 6



No. 2½

It is true I have had some excellent results, having lost only a small percentage of about 114 replanted in the past eight years. Most of these, however, were replanted in the past three years. I was prompted to undertake this treatment for Pyorrhea by the hope that the pathological conditions of tissues surrounding a Pyorrhea root might favor a union that would lessen the chances for absorption,

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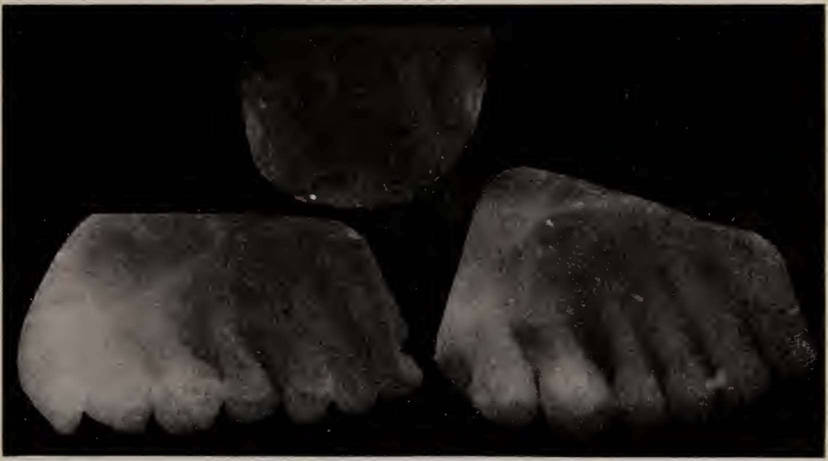
(Since showing these skiographs I have replanted the lateral referred to in cut No. 2. See cut No. 2½. Note the filling in of the process around the root, also that the root is in its original place. This was taken two months after replanting.)

and, therefore, make the operation more permanently successful. How far this hope will be realized time must tell.

I brought with me to-night a few X-ray photographs, which show the condition of some of the roots I replanted. I have been unable to get the patients for whom I replanted the teeth seven and eight years ago to the laboratory for pictures. There are only a few of them, but I had hoped at least one of them would accommodate me, so that I could exhibit the picture to-night.

This one we shall call photograph No. 1. We are looking at these teeth from the lingual side. The left lateral was replanted October 1, 1897. The tooth had protruded from its socket so that it rested upon the lower lip. It had become very loose and disfigured the young lady very much. I was unable after six months' treatment to get the tooth to tighten or to check completely the flow of pus, so I concluded to extract and replant it. The result so far is a happy one. The right lateral was affected in the same way, but had not protruded quite so far, so I concluded to keep it under treatment, and failing to secure this one as I had failed with the other, on October 29, 1898, I replanted it. In about three days the discharge recurred and kept up until the 14th of November, 1898, when I again extracted the tooth and cut off the end of the root, drilled out the socket and replanted again. The result you can see. These teeth are doing good service. It was necessary before re-

x x



x x x

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x Replanted teeth.

planting them to grind off the cutting edges of the teeth, so they would be in line with the other teeth.

The next photograph, No. 2, is from the same mouth. I wish to call your attention to the left central on the lower jaw. This photograph I just received. The lady has been sick for about five months, and she came to me last week with her lower teeth in much the same condition the upper ones were in three years ago. This lower central is very loose, and as you can see has protruded from its socket, which is considerably absorbed, as shown by the black space beneath the root. The right central is a little loose, caused by the absorption extending to its root. I do not think it will be necessary to replant it, but I will replant the left central and hope to show you the result of this operation within a year.

Unfortunately it is only recently that it occurred to me to have the X-ray made before the operation, so that we can determine just how much the process repairs itself around these replanted teeth. I also want to call your attention to the apparent difference in the union between the right lateral in photograph No. 1 and the left lateral in photograph No. 1. The union of the right lateral seems to be entirely mechanical, but in the left lateral it is more like a tissue union, as we see it in the teeth not replanted, a dark line between the process and the tooth.

Photograph No. 3 is, I believe, the most interesting one I have. The upper right central was replanted by me at a clinic at the Northwestern Dental College, just one year ago this month. It was a desperate case, the patient being an elderly lady and the tooth was very loose. It was just such a case as I had been looking for. Some of you here to-night witnessed this operation and probably are not surprised at the result. If you remember this tooth was removed without any effort. I found the end of the root absorbed. I polished it, filled the root-canal and replanted. This tooth has been sore ever since the operation. The root, as you can see, has continued to absorb, leaving the root-filling projecting beyond the absorbed portion of the root.

This condition is not a surprise to me. I expected just such a result as I got,—I mean a quick absorption, and yet I cannot explain why I felt as I did about it. Probably it was on account of the age of the patient.

The other photographs that I shall pass around I shall not go into details about. The ones marked with a cross indicate the replanted teeth. These cases are all over two years old.

Photograph No. 4 shows the extent of absorption around the roots of two superior centrals and left lateral. These teeth were injured, but not removed, eight years ago. Pus is discharging through fistula openings at the end of each root, and has been for three years. The dark lines through the process show the extent of necrosed bone.

Photograph No. 5, upper left lateral, has about the same history as No. 2. Note the absorption at the end of the root.

Photograph No. 6 shows the absorption of root of upper right central. This tooth was injured ten years ago and is now very loose.

In all of these cases I have followed out the same line of procedure. I make my retaining appliance before removing the tooth or teeth. When the tooth is extracted, it is then dropped in a saline solution (7½ grains of salt to a quart of water). I attempt to keep this water at blood-heat. Every instrument is sterilized and kept in the water. I do not interfere with the socket unless there is extensive necrosis, such as we see in photograph No. 2. For experimental purposes I do not always fill the entire canal if there is no crown cavity. I simply seal the apex with gutta percha, and when the tooth is ready to replace I put it in oil of cloves for about five minutes, sterilize around the socket as well as I can, put in the tooth, put on the rubber dam and cement on the retaining appliance.

Dr. J. G. Reid: I wish to corroborate the remarks made by Dr. Keefe. I have had some successes but more failures. When you have a success it is very gratifying. The latest of my successes was in an experimental way, and I am very glad that Dr. Keefe impressed you with the fact of the value of experimental work, but as a practice it is a very poor piece of business. My last case, a lady of 32, I extracted the first bicuspid, which carried a crown three years ago. It was the only missing tooth. She fractured the root, which carried a Logan crown. I removed the root and transplanted the tooth. I anchored it well with pins, and about one year after the tooth became loose and absorbed. Being the only tooth absent in the mouth from a very beautiful set of teeth, she was interested enough to allow me to replant another one. After removing the tooth I deepened the socket about one-eighth inch and replaced the tooth, and anchored it well. That was two years ago last August and the tooth to-day is firm, healthy and sound as a dollar, useful as any tooth in the head and an apparent success, but I anticipate that in about five years that tooth will be lost as the roots will probably absorb in that time. I replanted teeth a number of times, probably twenty, and only two of them have apparently been successes. They have all been absorbed in from two to seven years. That has been my experience. It is not a success in one year. I believe that if you can replant a tooth and make it a useful member in the mouth for five years, you have been amply paid for your effort and the patient has had a sufficient remuneration. It is a success enough to warrant such an operation in cases where it is indicated.

Dr. Carl T. Gramm: I am very much interested in this subject and would like to speak from a practical view. Any operation which preserves a tooth for even a short period of time, from three to five years, is worth doing. Let it absorb and fall out in the course of five to ten years, still that patient has had the use of that one tooth and the operation is not a serious one at that. How to proceed with the operation, remove the tooth and enlarge the socket is what I want to dwell upon as being most essential. I have removed the tooth and enlarged the socket under the administration of nitrous oxide gas. I administer the gas and have the instruments all ready, instruments made especially for the enlarging of these alveoli. While the patient is under the influence of the gas, in as quick a time as you can grasp your instruments and do the work it is accomplished. The patient wakes before you can proceed to manipulate the tube. I always insist on smoothing off the apex. In pyorrhœa the apex is nearly always necrosed a trifle, sometimes a great deal. Abundant time is given you to remove the necrosed portion. I have had my eyes open to the futility of simply scraping a root in pyorrhœa alveolaris. This deposit, oftentimes of the green hard variety, is removed only with the greatest difficulty when you have your tooth out on the block and a good sharp instrument on hand. Even with the tooth in a vise and a chisel in hand it is a difficult thing to remove the tartar. Let no man tell me that with a thin scaler, which is flexible, it is possible to remove this hard greenish deposit. That deposit must be removed by the chisel. The socket having been enlarged the tooth is replaced, and bands, which have been previously made, are cemented on.

Dr. Keefe, mentioned tetanus. Wherever this has been encountered it had to be inscribed to infection. Tetanus is produced only by the tetanus bacillus, and whenever uncleanly methods are used you may expect just that condition. The first operation I performed some five years ago, I deemed the use of cocaine by cataphoresis a possible success, but it was a failure for the reason that when you have very largely inflamed surfaces and the blood vessels open up and bleed, the cocaine does not come in contact with the parts, or if it does enter into the circulation it is too rapidly or is washed away. I use no more cocaine but simply nitrous oxide gas, especially as it leaves the patient in good condition.

Dr. Thomas L. Gilmer: I have had considerable experience in this line and I believe that in proportion as the work is successful it is a failure. I am safe in making this statement because I have made examinations of the roots of teeth to discover the attachment, and in these cases I had the opportunity to examine I found that there had been absorption in the roots and there were bay-like excavations in which was deposited bone. If you will take an instrument and tap a tooth which has been replanted, transplanted, or implanted, unless it is one that has a revivified peridental membrane or pulp, you will find that it gives a decidedly different kind of tone from a tooth with a normal membrane. This indicates that it is held in by bone. Unless you have these bay-like excavations or deposit of bone the tooth will not remain in the socket. In proportion as the osteoclasts are active, so in proportion will your tooth be quickly cut away. When the tooth comes out it has very much the appearance of a deciduous tooth which has been absorbed. Teeth that have been replanted for the cure of pyorrhœa will probably remain in the jaw a longer time than teeth which have been replanted for the cure of persistent alveolar abscess. You must make a new socket or you must deepen the socket, thus practically making a new socket. My experience is, that implanted teeth last very much longer than replanted or transplanted teeth, because there is enough absorption and enough deposit of bone to hold the tooth in place. I am pleased with the presentation of the paper and the discussion, but I will say that no tooth should be extracted and replanted for the cure of persistent alveolar abscess. You can do better by resecting the root. It is not difficult in these anterior teeth and then you do not have the osteoclasts at work to destroy the tooth. They do occasionally last seven to eight years, but those are exceptions. It is much more likely to come out in one year than in three.

I had a whole lot of failures a number of years ago. Every tooth I put in was a failure because I was using as an antiseptic a very weak solution of oil of cassia.

Dr. C. T. Gramm: About two years ago I experimented on this subject with a view of writing a thesis to present before the

Academy of Medicine. My work was done on dogs with the view of studying the regeneration of bone in connection with the replanted tooth which acted as an irritant. My idea was that the process developed would be that of irritation to such an extent that we would have a hardening of the bone, enough to support the tooth. Dr. Gilmer's point is well taken, but I wish to call attention to the fact that the activity of the osteoclasts varies with the amount of irritation present. The root is held in place by mechanical means because you have solidified bone grasping it, and particularly because of the bay-like excavations which have been filled in by bone. It is the work of the osteoclasts, but that process need not necessarily be kept up. The bone will solidify under the influence of the gentle irritation, and having solidified and the irritation having been in a large majority of cases overcome, the condition, if an irritant one, will prevent the osteoclasts from being active, until something happens which will set up the activity of the osteoclasts again and produce absorption of the bone throughout. The tooth is kept there simply because the process has become latent and the bone is solid enough.

Dr. J. E. Keefe: If there is any gentleman here who has a method he believes is infallible or that is new, or if he has a certain way by which he gets better results than others, I will bring him authorities from other sources and those of men who have gotten just different results from his with the same manipulation. I do not believe that there is a man living to-day who can invent a method of procedure that I cannot show him an authority for its having been done in the 300 years past. I do not care what it is, I will show him an authority for everything that the human mind can think of and yet they are all failures.

Dr. George B. Perry: I had a case some years ago where a man was held up and had the left upper centrals and laterals knocked out in a clean manner. He found the centrals and brought them in in the morning and I kept them during the day, treating them carefully and replanting them in the evening about six o'clock. In the course of about three months, I drilled an opening in the palatal portion, inserted a pin, devitalized the cuspid and swung in a lateral in the space. The left central which I had replanted was stronger, firmer and more useful than the right central which had been removed. I saw the case about two weeks ago and it is still doing well, being as firm as any tooth in the mouth.

Dr. (a member): I wish to take a few exceptions to the nomenclature Dr. Cruise made use of. A scientific body of men ought to be more careful. He used one word, "exostosis," which I think he wrongly applied. He probably meant "hypercementosis." In another place he spoke of haversian canals; I think he meant the dental tubuli. He spoke of the nerve of the tooth. We use that a great deal, but we should say the pulp which is made up of connective tissue, bloodvessels and nerves.

Dr. Cruise (closing the discussion): A man is always satisfied when he gets what he expects. I have found the discussion as learned as I expected. I have profited very much from Dr. Keefe's remarks. As regards recommending the operation as a practice I do not recommend it to this society, because even if I had replanted a tooth every day since I commenced practice, I could not recommend it, because a success of five years only would not justify it. My replantings are up to the present successes. I think that if a tooth stays in for four or five years it is a success as I learned in college that the average life of fillings and crowns was not over five years. Dr. Keefe says one of his skiagraphs is a failure. I saw the operation and I remember one point which may perhaps have something to do with the failure, and that is the tooth was irregular. It stood out, and an appliance had been made to hold it in place. I remember the doctor saying that we may have a chance here of killing two birds with one stone, and he made some change in the appliance. The pressure on the end of the root may have caused the bone absorption seen in the skiagraph.

As regards the reference to nomenclature I apologize for the mistakes I made. I should have said excementosis, but we hear exostosis so often in dental parlance that we fall into the habit of using it. In regard to haversian canals I will refer the gentleman to Doctor Garrettson's oral pathology, page 101, where he can get some information as to tooth structure.

Chicago Dental Society.

At the October meeting a desire was expressed to hear what were the expressions of the delegates from Chicago to the International Dental Congress. Dr. A. W. Harlan was called upon first, and spoke as follows:

The chairman of the Programme Committee is not here, but when he spoke to me about this matter I particularly requested that I should come last, because, as I told him, I was in a position where I could see all of the best things of the Congress, and some of the other gentlemen might have been in positions where they did not see them all.

The few things that some member of the profession who was there might not speak about was this: The weather was exceptionally good, and the city was not crowded, and the hotels were extremely moderate in their prices, and the statements that have been in the newspapers about the rapacity and robbing propensities of cabmen, etc., are all absolute falsehoods. All the time that I was in Paris I never had a cabman treat me with any incivility or refuse to take the legal fare, and almost universally he said thank you and lifted his hat. So that some of the statements that we read in the newspapers are simply absurd.

With reference to the exposition as an exposition, it represented the progress of the world during the last seven years, and so everything that was new, everything that has been invented and discovered and fabricated during that time was shown in that exposition. It is true that we did not have a White City and we did not have a great lake, but there were gathered under the roofs of the buildings that were connected by passage ways and electric railways and boat lines and bus lines, such an exposé of the progress of the world as it has never been my privilege to see before. I visited the exposition of 1876, in Philadelphia, and 1878 and 1889 in Paris, in 1893 in Chicago, and this last great exposition in Paris, and while we are not to say that it was better than our exposition, yet, I say, as a whole it was simply one superb collection of the world's wealth, and all of the art and sculpture and machinery and electricity that could be placed within such small compass was to be seen there.

It is impossible to give even a running account of the seven or eight swift flowing days during which the Congress was held. Suffice it to say that a daily programme was issued, which was a great aid to those who understood English, French and German, as these were the most popular languages. The exercises of the opening and closing sessions were most impressive, and the utmost good feeling prevailed. Chicago was honored by having two of the chairmen of sections, Drs. Brophy and Case. The tendency to be late at the opening of the daily session, was quite marked, but in spite of many drawbacks the machinery ran pretty smoothly. For a first effort, to handle 1,250 to 1,500 persons, I think they did remarkably well. Now as to the word success.

In considering the success of a congress, especially one held in France, you must take into account the fact that it is only within the last twenty years that dental education has had a beginning; that the men who were pracicing dentistry in France prior to that time were of two classes: Those who held a doctor's degree, a very small class by itself, and the larger number of practitioners who had grown up holding no dental degree; many of that number, however, being dentists of good repute.

In 1880 the first dental school in France was organized by men, few of whom held any professional degree. A little later another dental school was organized by those holding the doctor's degree. Since that time we may date the beginning of modern dentistry in France.

In 1881 practically the first professional dental journal was organized by the late Paul Du Bois. Within a few years the effect of the teaching given in these schools was felt, not only in France but abroad; so that in 1889 it was possible for the dentists of France to invite their brethren from all parts of the world to participate in the first international dental congress. This small congress of three or four hundred persons was the beginning of the congresses that are now denominated world's dental congresses. Succeeding that in 1893 was held a World's Columbian Dental Congress in Chicago, with 1,150 members.

During all the years from 1880 to the present time a constant struggle has been going on in France between the adherents of the school established by the non-diplomaed men in 1880 and those who held the doctor's degree. It can be readily understood that the former outnumbered the latter, and as they grew in importance they established local dental societies all over France. They established a national dental society and a national dental law, and when the project of an exposition in Paris was broached some years ago it was thought that the time might be ripe for an international dental congress. At that time it was not expected that there would be held in Paris an international medical congress, because it had been the custom for medical congresses to meet every third year, so that that meeting would naturally have come in 1899 or 1901 instead of 1900, but, owing to the fact that there was some disturbance in Italy in 1893, there was no medical congress held, and it was postponed until 1894. This gave three years from 1894 to 1897 for the twelfth medical congress, and the year 1900 for the thirteenth.

On account of the stupendous efforts that were made by the organizers of the section of stomatology in the medical congress, it was thought that the dental congress would be a small affair. On the contrary, this stimulated members of our profession throughout the world to give their adherence to the third international dental congress, which has just been held in Paris. The number of members aggregated about 1,250. There were eight days devoted to this congress. The congress was divided into eight sections, and these sections at times united and held joint meetings, and every day at half past one there was a general session, where three or four papers were read by authors from France, Great Britain, Germany, the United States and other countries. The share that the United States had in this congress was very large, the membership constituting about a twelfth of the whole congress.

It was unfortunate that there were so many papers, so many excellent papers, not only from this country but from other countries, that some of the writers could be scarcely heard. But the time was limited, and as much as could be done was done by the officers of the congress and of the sections, and particularly was this true in the clinics which were given daily in the two schools, and I understand from others who attended them closely that they were of varied interest and of great practical importance to those who attended. This was notably so in the bacteriological and microscopical sections.

Personally, I saw very few of them, because my time was taken up with other duties in connection with the congress. I cannot help but conclude that from the enthusiasm and the interest and the constant attendance of the French on this organization and from other countries that the congress was an epoch maker in the history of congresses.

I am sorry that I cannot give a detailed account of the various procedures that were given in the clinics; but there are others here to-night who can supplement these remarks with experiences of their own.

DR. B. J. CIGRAND: While coming down here this evening I made a few hasty notes as regards the impressions while at the congress. I will say in the beginning of my remarks that I thank the dental society for having appointed me one of its delegates to represent them at this international dental congress. Unfortunately, the great majority of the American dentists who attended the congress were handicapped in that they could not understand the French language, and I for one would say that the dental congress was immensely and intensely French. That, however, was not a fault of the congress; it was only unfortunate for us that we did not understand the proceedings as thoroughly as we would have,had we been informed. It was my pleasure to have been able to understand the German language and I will say that the German portion of the programme was excellent. The large majority of their papers related to the interest that the German government is taking in caring for the teeth of the children in the public schools, and I want to confess right here, ladies and gentlemen, that the German government is a long ways ahead of the government that we are living under, as regards this question. There is hardly a large city in Germany that has not at the present time dentists who are regularly visiting the public schools and making memoranda as to the condition of the children's teeth. I wish the time would allow me to tell what I learned from the German papers as regards this one feature of the dental congress. There is now pending a law in Germany which makes it necessary for a regularly appointed dentist to visit the schools twice during a session and appoint as many subordinate dentists as he sees fit,to carry out the object of looking after the teeth of the rising generation. This was especially pleasing in that the Odontographic Society of Chicago is interested in this field of charity and is making a similar effort in that direction in the United States.

Much could be learned aside from attending the clinic rooms and lecture halls; much could be learned in the rotunda. I might say that I learned in the rotunda one thing which I will communicate to the society, and which I felt was an exceedingly interesting and important matter, and relates to the interest that Great Britain is taking in placing dental surgeons in the army and navy; also in recognizing the degree of a dentist and giving him an official notice, or giving him precedence in the British army. I will read to you what was not a part of the program, but which I learned in the rotunda, and later it was my pleasure while in England to look up this matter to see if it was as represented, and I went to the arsenal at Woolwich,—the greatest arsenal in the world,—and I found that it was more than so. The following is how the statutes of Great Britain read relative to oral regulations:

DENTAL REQUIREMENTS FOR ARMY AND NAVY.

Published by the School Dentists' Society for the Use of Members.

W. J. Fisk, Hon. Sec., Street Lodge, Watford, Herts, April, 1899.

Requirements of Her Majesty's Naval Service as Regards the Teeth of Candidates.

Issued by the Medical Department of the Admiralty, April, 1899.

(a) Seven teeth defective or deficient in persons under seventeen years of age on the day of entry, ten defective or deficient teeth in persons above the age of seventeen, will disqualify.

(b) Both classes of persons must, however, possess at leat four perfectly sound opposing molars, viz., two in each jaw, and the same number of incisors similarly placed.

(c) A tooth is to be considered defective when it cannot be made permanently serviceable by dental repair.

(d) In all cases due regard is to be paid to the condition of the remaining teeth and their being likely to last for at least twelve years. Credit is to be given for teeth which have not erupted, unerupted wisdom teeth excepted.

(e) Artificial teeth not recognized.

Requirements of Her Majesty's Military Service as Regards the Teeth of Candidates for Commissions.

Issued by the Medical Department of the War Office, April, 1899.

The Candidates' Teeth to be in good order, loss or decay of ten teeth will be considered a disqualification.

Decayed teeth, if well filled, will be considered as sound.
Artificial teeth not recognized.

Requirements of Her Majesty's Military Service as Regards the Teeth of Recruits.

April, 1899.

That he possesses a sufficient number of sound teeth for efficient mastication.

The acceptance or rejection of a recruit on account of loss or decay of several teeth will depend upon the consideration of the relative position of those which are no longer effective; thus the loss of several teeth contiguous to each other in the one jaw, leaving none to oppose those in the other jaw, would be a cause for rejection, but not the loss of a similar number distributed between the two jaws and in different positions. Again, the loss of many teeth in a man of an indifferent constitution would point to rejection, while a thoroughly robust recruit who has lost an equal number might be accepted.

(At this point Dr. Cigrand made a few remarks on the efforts made in Washington to get appropriate dental services for the soldiers and sailors in the U. S. Army and Navy, which unfortunately failed, and then resuming, he said:)

After passing this bill the one line stating, "Decayed teeth, if well filled, will be considered sound," gave rise to considerable trouble as to who was to judge the tooth when it was filled. The medical men declined to pass judgment on it, and the result was that Parliament had to pass an additional bill or amendatory act to the effect that a dentist would be required to tell when the tooth was well filled. To-day at Woolwich, England, there are several dentists who examine the teeth of recruits. Each recruit must show, according to law, that his teeth are in the condition required by law. This was gratifying news to me.

I wish to say in conclusion that you all probably noticed the editorial in the Chicago Chronicle of yesterday: Editorially speaking, it says this, regarding affairs of a like nature in America:

"The surgeon general of the United States navy has arranged to send to Guam a dentist to treat the teeth of the men at that naval station. There has been much complaint from sufferers at Guam, and the services of a dentist are greatly needed. The dentist was enlisted as a hospital steward at $60.00 a month."

It is to be regretted that this fellow-craftsman could not enter as D. D. S. In conclusion, let me say that in these two mentioned particulars I found that Europe was a little ahead of the United States; and in this respect only—otherwise we are pre-eminently ahead. I hope to see the day when the United States will have the military requirements as rigid as ancient Rome; when a single missing tooth will be a disqualification to enter the army.

Dr. W. V.-B. Ames: I don't think I am going to be able to talk quite as long as my predecessors, because I must confess that while abroad this summer I picked up very few points from a dental standpoint. I had a mighty good time though, and for fear that the other gentlemen won't make mention of some things that most impressed me I want to tell you how nicely we were treated over there. And I want to make special mention of the treatment accorded us by the members of the American Dental Society of Europe. I think there are more genial gentlemen among the members of that society than in any similar organization I ever came in contact with. The social features were extremely pleasant and I was impressed particularly with the cordiality of some gentlemen who are at home down in Spain. After enjoying their society immensely it occurred to me that we had been in a scrap with them a couple of years ago, and I wondered if they had had a thought of it.

Now, I suppose there is no question as to the scientific value of this congress, I suppose that that will come out in the course of time and cannot be questioned. Dr. Cigrand says it was decidedly French; it was rather too much so for me. The value of international congresses; the international features of so-called international congresses, I must say I am a little inclined to question from a personal standpoint. It is hard for me to realize,—and I am afraid some others found themselves in the same fix,—the immediate benefit and the advantage scientifically, commensurate with the expenditure of time, money and energy in making the long voyage across the Atlantic or farther, so as far as immediate scientific benefits are concerned those of you who will just wait for the transactions are in some ways ahead of those who attended.

Numerically, the congress was a great success, and it seems to be proven beyond a doubt that Paris is the one place on the face of the earth to make a numerical success of an affair of this kind. I was probably in a peculiar position, having gone largely for selfish mercenary purposes, and devoted my time while in Paris in such a way that my impression of the workings of the machinery of the congress and my impressions of things new, novel and scientific are not entitled to much weight.

I was more fortunate than some gentlemen here present in being scheduled for demonstrations only. The clinicians were given ample time and space for their purposes. Had I gone with a paper over which I had labored I would now without doubt be saying a few things to myself.

When the papers have been printed in full, I expect to read some with much interest, when I hope to look upon the third international dental congress as a very profitable expenditure of energy, scientifically as well as socially.

Dr. T. W. Brophy: Not long since I attended a banquet in Chicago, at which a celebrated educator made this statement: In order that men may understand one another well, get in touch with one another's thoughts, they must meet together and eat together and discuss questions in an informal way. Well, we didn't lack for such opportunities while in Paris. There were so many breakfasts and dinners and luncheons and social affairs that we had time and opportunity to meet many distinguished members of our profession. and we gained from them a great deal that we could not possibly have acquired in any other way. Before I went over there I was somewhat in doubt as to the outcome of the meeting; I felt a little skeptical about its success from a scientific standpoint. But I want to say that when the transactions of this international congress shall have appeared and been translated into English so that we may all read and understand what was done, I think the decision will be unanimous that the dental profession has never accomplished so much work for its good and the good of mankind within the same length of time. I am unable to understand French and German, and had a feeling that if anyone were to read a paper that I was interested in in one of those languages it would be a matter of very great satisfaction to me if the author would have his paper printed in English, at least, so that I might read it and form an idea of what he was doing and get the substance of it, that I might discuss it, if it was a subject that I wanted to discuss. Working upon that plan, I caused to be printed in German and in French the paper that I read in Paris. And so we had it in three languages, and it was a matter of a great deal of satisfaction to me, because there were present in the meeting Frenchmen and Germans who knew no English,* and through their ability to know what I said I was gratified to have brought out a very interesting and valuable discussion, to me, at least, on the subject that I presented. I therefore would suggest to those of you who some day, no doubt, will be workers in the organizing of another dental congress, that those of you who may be on the committee of organization urge foreigners who come to our country to see to it that their papers are printed in English, at least. In that way they will have a much larger audience than they possibly could have if they had it only in their own language.

The papers that I listened to that interested me most were those of Dr. Leon Williams of London, the paper of our modest young friend here to-night, Dr. Hinkins; the papers of Dr. Case, Dr. Cook and Dr. Harlan. There was a paper read by Dr. Williams which, like all the papers he reads, was exceptionally fine. He illustrated it by the use of a stereopticon, and it was one of the features of the meeting. A paper was read by Dr. Fisher of London on the value of the teaching of dental hygiene in the schools. A paper was also read, an extract of which was read here this evening by Dr. Cigrand, in regard to the qualifications of applicants for admission to the British army. And while we at home, many of us, have grown into the belief that American dentistry leads the whole world in every sense and every department, we are about in the same position, when we consider ourselves in this way, as the man or woman or child who takes part in a tableau; he poses and the audience looks on. Now we over here pose and congratulate ourselves on our great skill; on how much we know about dentistry, but when we go over on the other side of the water we are then in the position of spectators and we look over at the tableau on this side, see ourselves as others see us, and we can see many defects that we are eager to overcome. Our defects are, to a great extent, in the department of prosthetic dentistry. I must confess that many of the members of our profession on the other side of the water do really excel, when we speak of the large number; in any event, they are on an equality with the very best talent that America can produce.

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*Educated professional men in all Europe know quite generally German and French.

I get down to a subject now that I have devoted a good deal of thought to, and that is the subject of dental education. I would like to tell you some few things of the methods pursued over there. In the first place, over there, as Dr. Harlan has stated, the system of dental education is in a formative state. It has been a question with the English and the French how best to teach men to practice dentistry. In France the man who has the degree of M. D. is a legal dental practitioner; if he desires to buy himself some instruments and engage in the practice of dentistry he may do so. The French see the evil of this system and one of the hottest fights that I ever witnessed occurred at the last session of this international dental congress on this subject of dental education, and the adoption of a resolution on that day will do more toward stimulating higher dental education in that country, as well as our own, than anything else that has ever occurred since the name dentistry was first pronounced. There came into that meeting the gentlemen who compose the faculty of the medico-dental school, these gentlemen now composing the school which was founded by physicians. They were really the nucleus of the section of stomatology in the international dental congress. Their motives unquestionably were good in organizing that section, but the fact of their organizing such a section led to a strife on the part of others to make the international dental congress as great a success as possible. The outcome was about 1,300 members of the international dental congress and, as near as I can ascertain, something like 140 in the section of stomatology. So then these men came into the meeting of the international congress on the last day of the session, and the management of the congress saw fit to present at the close a series of resolutions, the object of which was to get an expression of opinion on the part of the members of the congress as to whether, in their judgment, such a set of resolutions should be adopted. The resolutions went on one after another until finally something like the following was arrived at:

Resolved, That it is the sense of this congress that the course of instruction in our dental colleges be extended over a period of four years of eight months each. Carried.

That was one. And then—

Resolved, That graduates of medicine be entitled to advanced standing in our dental colleges and they be advanced to the second year's work.

Resolved, That the requirements for admission to our dental colleges be what, in our country, would be equivalent to high school graduation.

Now then, what occurred? The gentlemen of the medico-dental school came in and offered an amendment to the resolution which provided that medical graduates be admitted to the second year of the college course, and moved that they be regarded as qualified to enter upon the practice of dentistry without any dental training, and that the dental student should first finish his medical instruction and then take up his course in dentistry.

Dr. Harlan: You haven't got that quite right. The question was on the preliminary education necessary to enter upon the study of dentistry. The members of the school insisted that it should consist of a medical education, and the management of the congress had proposed that a preliminary examination should be passed equivalent to that of the high school or bachelor of science.

Dr. Brophy: That is the situation. That discussion continued probably two hours and sometimes there were seven or eight gentlemen on the floor at once. And finally, after this long discussion, the resolutions as they were first read were adopted and the amendment was laid aside. And that, in my opinion, was one of the greatest victories that has been accomplished in the way of fixing a standard of dental education. If the congress had done nothing else but to have made and passed that series of resolutions it would have accomplished the greatest work possible in the interest of higher education.

Another thought about the American dentists in Europe. The Americans over there are doing well. There is a great opportunity for bright young men over there. I have in my hand the cards of eight or nine prominent practitioners who want skilled assistants and they want them to come from America, and they want these young men to go there and to stay. But I want to say this much in conclusion: While our friends, the charming fellows who make up in my opinion, a part of the very best element of the dental profession of Europe; while they are making money very rapidly, they are away from home, they miss the fellowship, they miss the fraternal spirit which they find so abundant among the members of our profession in America; they miss the delightful environments of their early manhood; they long for home and each man hopes some day to have completed the work that he went there to perform and come back and live under the shadow of the Stars and Stripes.

Dr. Geo. W. Cook: The informal discussion of this subject this evening has gone from Switzerland to London and back two or three times, and I think there is very little that I need to say, and perhaps nothing that is worth saying. There were two things that impressed me very much during my trip abroad; one was a cement filling which I saw a gentleman put in at a clinic, and another was the morgue in Paris.

There is no denying the fact of the social feature of the congress. It was in every respect, seemingly, a brilliant success, and, of course, the benefit of a congress or of a meeting of that nature is far reaching, and the scientific papers that will be published from that congress will be classic in our dental literature in the future without a doubt.

There were some things that impressed me as rather Frenchy. It seemed to me that there was a tendency on the part of the French, in some respects, to snub some of the foreigners there, especially some of the essayists. One of the things that impressed me very broadly was a paper by Dr. Price of Cleveland, who had prepared a very brilliant essay and had the privileges of the floor for about seven or eight minutes, when he was told that his time was up and he would have to come on the next day's program, and a Frenchman immediately followed him and stood on the floor and read a paper for an hour and five minutes. That was one of the things which seemed to me was not a nice way to treat visitors. They had arranged the program, apparently, to utilize the time as much as possible, and they thought in doing so the best way would be to divide the papers so that a certain time be devoted on a certain paper on that particular day, and then it would be continued the next day. Perhaps that was advisable, but to my mind it detracted somewhat from the congress. Of course, we are well aware of the fact that with the volume of business that had to be done during the sessions of the congress it was impossible to handle everything as should have been done.

I think that the American dentists ought to tender to Dr. Harlan a vote of thanks for his untiring efforts on the behalf of the dental profession of America at this congress.

There are a number of things that I would like to speak about, but it is growing late and they perhaps would be of no special value at this time.

Dr. Josephine D. Pfiefer made a few very interesting remarks in regard to the social side of the congress, and gave great credit to many Americans for the enjoyable time which they all had.

Dr. J. E. Hinkins stated that while it was impossible for a foreigner to make an intelligent criticism where the conditions and circumstances were so different as between Paris and the United States, yet, he thought that on the whole the exposition would compare favorably with our World's Fair here in 1893. He spoke very highly of the hospitality of the Frenchmen, and especially eulogized the members of the American Dental Society of Europe. He said he would not speak of the congress from a scientific standpoint, as that had been fully covered by the preceding speakers, but that without a doubt it was a grand and brilliant success from a social point of view.

Dr. Robert Good made a few remarks in regard to the congress as a social success and gave all credit to the officers of the congress for the good time enjoyed by all who were in Paris.

Dr. W. Girling spoke briefly of the social features of the congress and of the city of Paris. He also stated that he was impressed with the fact that the clinicians, as well as the essayists, from the states did themselves great credit in their part of the congress.

Dr. J. W. Wassall stated that he had a very enjoyable time while in Paris; that he was heartily in favor of international dental congresses; that he thought they were helpful to the profession and helpful to the growth of civilization, and that he hoped he would be able to attend many more.

Impressions of the 1900 International Dental Congress.

When I looked into many of the faces of the twelve or fifteen hundred men who met at Paris last August, I quickly recognized that they were there for business. They had not traveled many days and nights for the purpose only of having a good time and enjoying the "social features." There was a look of determination in their faces that seemed to say "I came here to have an interchange of ideas. I wish others in my profession to see what I have and wish also to see what they have. I would like to see these men work so that I can compare their methods and instruments with those which I am using." This was the first impression I had, and later on it proved to be the correct one. The interest manifested in the essays and clinics was sufficient to please almost anybody. Of course I did not remain throughout the entire session and I am merely writing of what impressed me most of all.

"What are your impressions of the International Dental Congress? Did you have a good time? Is Paris a beautiful city? And what of its people?" are some of the questions which I have been asked time and again. Let me ignore the order of the questions and answer them as I wish. There is but one Paris, and it is a most beautiful city. If all the different meetings held there this summer were as well regulated as the dental, then there are many thousands who will not soon forget that beautiful city.

The French are most delightful people and I am really sorry that I am not right there now, for I had a most enjoyable time. Everybody connected with the Dental Congress with whom I came in contact treated me most royally. Perhaps this is one reason why I should like to be there now.

I was impressed by meeting so many men from Chicago. The very first thing I saw Drs. Brophy, Gilmer, Harlan, Ames, Wassall, Hinkins and a host of others with whom I have been more or less associated for a number of years. It seemed to me that I was in Chicago instead of at Paris. But I had merely to walk down stairs and there see the men sitting in front of the cafés who were drinking absinthe and smoking cigarettes to be convinced that I was in a foreign city. The next thing was something that I shall not forget while I live, and that was the arrangement for the clinicians. The morning of my clinic Dr. Warner, of Denver, and I entered a cab and started for the dental school. While driving I said to the doctor, "I would rather give $100 to charity than to make this clinic. I know I shall have my feet walked on, be kicked in the shins, have my clothes torn and be compelled to have some great large man lean on my back from the beginning to the end of the operation. There is that good friend of mine, Dr. Johnson, of Chicago, who a short time ago had his life shortened about five years by having been put through a similar threshing machine. While operating at a certain meeting, a great big fellow weighing about 240 pounds leaned on his back from the beginning to the end of the operation. That poor man was nearly dead when he had finished the filling. I have endured similar treatment and I expect it again this morning." The cab rolled on and the nearer we approached that dental school the heavier my heart became. At last we were there. With fear and trembling I entered the school and was shown to the clinic room. I took one look into that room and there was the spirit of Harlan. His hand was visible everywhere. Each chair was enclosed within a railing and all the railings were nicely decorated with some red material. There was plenty of room within this railing for the chair, the operator and his assistant. My forebodings all vanished and my heart rejoiced within me to think of the comfort that I should have, and I had it.

The attention and the anxiety to learn that was characteristic of the men who watched my clinic was noteworthy. There was question after question put to me, why I did this, and why I did that, etc. These questions were asked in a half dozen different languages. Almost everybody was amazed at the .Nebraska clamp which was used, and about all wished to know where that came from as they wished one also. Many could not understand how so much execution could be done with those little Wedelstaedt chisels. They wished also to know who made them and the kind of steel used. The general separator had never before been used in Paris, and much pleasure was taken by many in examining it and the way it was used. From the attention that was bestowed on the entire operation from beginning to end, I cannot help but feel that the majority of men witnessed the operation for the sole purpose of comparing their methods with the ones they saw in use. I was requested several times by different ones to make explanations regarding the different stages of the work, but that was an impossibility to do, unless a man wished to keep the patient sitting in the chair for four or five hours. From the way in which the cavity was examined, after it had been prepared for the filling, the interest shown in the packing of gold and finishing the filling, I am inclined to the belief that great and lasting good can be accomplished if a clinic takes place in one room. After it is completed have a full discussion of the same right then and there. Every man interested can take notes, and after the operation is completed ask questions. There are few patients who care to sit in a dental chair with a rubber dam adjusted any longer than is absolutely necessary, and everything possible should be done to expedite the work and not keep the patient waiting while we make explanations to others.

Of course it would have been easier for me had I been able to understand French, Italian, Spanish, and several other languages. I could then have been in a position to have answered several whom I thought should have been answered. This I judged from their method when speaking, but it may merely have been a mannerism. I did not get a chance to say very much to those who understood all these languages regarding what some meant.

I think it would be well if all the essays could be published in English, French and German about a month in advance of the meeting. If this could be done, a man could better prepare himself to speak in an intelligent manner regarding the ideas of an essayist.

I wish to say something about enclosing those chairs for the clinicians. I do not know to whom the clinicians are indebted for the thoughtfulness that prompted this action. It looked to me as though Dr. Harlan was the man. It does not matter who he was, he can rest assured of great and lasting gratitude from each and all of the clinicians. As a clinician this one feature left an impression that will remain forever. Almost every State in this Union has one or more dental societies. At their sessions clinics are usually held. I think the time has come when the action of the International should be emulated by every society that holds clinics. Recently at a clinic I saw in the chair a frail, delicate woman, and leaning on her shoulder was a man twice her size. Another man was leaning on the woman's thigh and leaning on his back was still another man who was also trying to see all that he could. Now this is not right, and it is as unjust to the patient as it is to the operator. There are a large number of very excellent operators who would cheerfully make clinics if they were aware they could operate and not be molested. Many of these will not clinic at the present time on account of what they are compelled to endure. It was only a short time ago while operating for the benefit of the members of a certain society that I was unfortunate enough to have men hit my right arm three times and with so much force that the rubber dam was punctured and the patient gouged in the roof of the mouth. Where the patient and the operator are protected, things of this kind do not take place and it would be a pleasure for many to make clinics.

The International Dental Congress of 1900 is now a thing of the past. If I am to judge from the attendance and the interest displayed, I would say that such a congress should be held every three years, instead of once in thirty years. Another such meeting should be held at Buffalo during the Pan-American exposition. That which is new should be brought out. This applies to instruments as well as to principles and methods. Every day ten clinics could be made. On one day let each operator fill a cavity in an incisor. The next day let the cavities in the bicuspids be treated and the last day fill cavities in the molars. Choose as clinicians the men who are up-to-date and know how to operate. If there is a display of skill made by the operators in gold, amalgam and porcelain (amalgam for the molars), I think that the amount of good that would be accomplished is greater than the most sanguine amongst us can conceive. Can this be done? I most sincerely trust so.

There is much more that I could say about the International Dental Congress of 1900, but this is about enough. I hope I shall be able to attend another International Dental Congress where all will be as pleasant, as interesting and the men as attentive as was the case at the Paris meeting.

Very cordially yours,

E. K. WEDELSTAEDT.

ILLINOIS STATE DENTAL SOCIETY.

DISCUSSION ON ANTISEPTICS AND DISINFECTANTS.

See page 765.

DR. E. R. CARPENTER, of Chicago (opening discussion): When Dr. MaWhinney wrote me a little note and asked me if I would open the discussion on his paper, I replied with great pleasure that I would, and I am very pleased to open the discussion, although I feel like one of the early philosophers who remarked that a little knowledge was a very dangerous thing, and I must admit that my knowledge on this subject is very limited, so that if I make any very radical statements in direct opposition to Dr. MaWhinney's views, I trust that he will take them kindly as they are meant.

In reading over the paper several times there were very few things in it that came within my mental horizon that I felt able to cope with. But there was one thing that did strike me very decidedly, that possibly the title of the paper is a misnomer. It ought to be so titled as to designate it as a theoretical and a scientific discourse. I very much appreciate, from the very small amount of work that I have done along that line myself, with both Dr. Cook and Dr. Lawley York, that Dr. MaWhinney's paper represents a great many hours of very close hard work, and I want to thank him for it. And I feel that it will be one of the steps in the evolution of this one much puzzled question. This one thought did strike me, however, and that was that the paper gave us little to apply practically in our profession; from a scientific standpoint, a great deal. But it occurred to me, in the first place, that had the amount of media, 10 c.c., been reduced 100 per cent and been placed in a smaller test tube, and after the certain inoculation had been made and the notations noted, if the whole contents had been turned out, part at a time, and results then noted, with the additional antagonism of the addition of more antiseptics or disinfectants, and gradually carry that point on down until all of the inoculated media had been turned out; then the tube washed or cleansed in approximately the same manner as we are able to cleanse a pulp cavity and canal, and these results noted, that possibly we might take unto ourselves something that would be of more practical benefit to us. I read the paper over and over, trying to find something where I could criticise or where I could differ with Dr. MaWhinney, but I found nothing, because I felt that I would have to make all the experiments myself and I am not competent to do that. But it occurred to me that if the method which I have spoken of could be carried out it might apply practically to us in our every day work. I thank you.

Dr. Geo. W. Cook, of Chicago: Dr. MaWhinney and Dr. Carpenter have said my "say." Dr. Carpenter spoke of the impracticable part of the paper. I think, however, that this can be applied practically. If one minim of Chinasol will stop the growth of micro-organisms in 10 c.c., we can reduce that solution very much and use it in the teeth. It perhaps, too, illustrates the fact that we have chemical and mechanical antiseptics. The essential oils, I believe, are simply mechanical antiseptics. In the pharmacology of the oils, and the chemistry of them, they have not been recognized as substances of great value as antiseptics and disinfectants, from the simple fact of the inability to get them into solutions, to get them to where they might act on micro-organisms. And as Dr. Sushner in his little book speaks of essential oils, he says that their action as antiseptics is due, perhaps, more to their irritating properties, acting as a foreign body on the micro-organic cell and producing death from a mechanical rather than from a chemical action. The discussion of antiseptics and disinfectants is a very broad subject and most every man who has done any bacteriological work has attempted to make some experiments and tried to find out more closely, if possible, the true antiseptics. This has been done more largely out of dentistry. We have had very little work in the new remedies, especially, in the dental profession, but the effort is and has been on the part of the biological chemist, reducing, as near as possible, the minimum of the poison in the system and getting the destruction of the micro-organisms, thereby trying to obtain a true chemical antiseptic. Now I believe that we, as dentists, have to do that as much,—I might say, not so much as the internal medicine man,—but as much as we can. We know that the micro-organic cell is very much harder to destroy than the protozoa cell; the latter is much easier affected than are the vegetable lives. I believe in the treatment of teeth there are more teeth injured in the mouth from treatment than there are from the effects of micro-organisms. That, perhaps, is a very broad statement, but we have been, I think, poking everything into a tooth that the agents came along and told us were good antiseptics, because Bill Jones put something into a tooth and nothing happened. And we bring about an irritated condition of the peridental membrane from the absorption, or from the exosmosis of these agents, affecting the peridental membrane and thereby bringing about an irritated condition and a soreness of the tooth. So I think that the work along this line lies as much in the field of dentistry as it does in the field of medicine, because we have to deal with the great combination of micro-organisms whose resistance, in my mind, is greater than we find them most anywhere else. The germs isolated from the oral cavity, to my mind, seem to have a greater resisting power to agents than most of the cells found outside of the mouth. And I believe if we can obtain a true chemical disinfectant and antiseptic we have got to do a great deal of work and reduce the subject to one of scientific importance, if possible. The only way that such a condition can be brought about is simply by laboratory experiment, as Dr. Black stated last night, that in order to study anything we have got to take it into the laboratory. Therefore, if we can obtain a biological antiseptic, an antiseptic that will act upon micro-organisms before it will act upon the multicellular life, let us do it. I thank you.

Dr. W. F. Green of Evanston: I don't know that I have anything to say directly on this subject; it is beyond my depth, but I have a few comments to make to the members. This meeting has demonstrated to me one thing, and that is influence with the powers that be counts; "pull," if you choose to call it such. I am not complaining of the committee; I do not wish to censure them, but it does seem to me that there is something wrong somewhere when a paper of this character is put off to the very last thing. Compare the time, if you will, labor and money spent in its preparation, with the time required by some others, whose authors came in a rush, were given the floor, read their paper and took the next train home. Dr. MaWhinney came early and staid to the last. I say he would have been justified had he folded up his paper and gone home. The first kind is offended if you are not here to listen to their papers read, but they won't stay to hear yours. Rush and hurry are not good for dental societies, although they may be in some others, and the sooner the members of this Society realize that when they consent to read a paper or give a clinic, they are in honor bound to do it at the time stated in the program, the better it will be for all concerned. If they fail, they should notify the committee, in my judgment, before the meeting or make an apology. I am not censuring the committee in the least; I don't mean to be personal in any way. The Illinois State Dental Society should not hold its meetings for the benefit of the few, but for the largest number possible. Therefore, I say we should be unselfish and adapt ourselves to the convenience of the Society and not the Society to ours. Dr. MaWhinney's paper, in my judgment, deserves the full attendance of this Society and the consideration of all its members. It is a deep, a scientific, and I may say, intellectual paper.

Dr. F. H. McIntosh, of Bloomington: I would like to ask Dr. Cook if he will explain in a few words what is a mechanical and what is a chemical antiseptic?

Dr. Geo. W. Cook, of Chicago: The difference seems to be this: A mechanical antiseptic is a substance that interferes, either by acting as a foreign substance, obstructing nutrition, therefore choking the germ to death, or by surrounding the germ with something that chokes it to death. A chemical antiseptic is considered one that acts directly upon the cell, enters into the cell protoplasm in such a way as to destroy its continuity, or its chemical basis, therefore killing it outright.

Dr. Edmund Noyes, of Chicago: Are disinfectants as distinct from antiseptics?

Dr. Cook: There is a difference of opinion. Some of our best men have come to the conclusion that an antiseptic is an agent that prevents the growth by chemical action. Then there is the disinfecting property of an agent, and that is one that is only carried a little farther. The scientific men who have been working upon this subject do not seem to discriminate very much between antiseptics and disinfectants. They discriminate in saying that an agent inhibits the growth, or is an antiseptic. They don't seem to make much distinction between an antiseptic and a disinfectant as we have heretofore considered the subject. We have always considered that anything that prevented putrefaction was an antiseptic, and the thing that killed the germ was a disinfectant. They don't seem, in the later investigations of this subject, to make much distinction between antiseptics and disinfectants. In my idea of this subject, I consider an antiseptic an agent that so acts upon the proteid matter of the cell as to change its quality in a way to prevent its growth and eventually kill it. It don't know whether I have made the subject very clear or not.

Dr. MaWhinney (closing discussion): Ladies and gentlemen: I haven't anything to say in closing, except that I might say by way of explanation to Dr. Carpenter, so far as the practical side of the question is concerned, I haven't had the time to think of that yet. The time I have consumed in the work I have presented here has been about six months, four nights in the week, from six to eleven. I haven't had the time to think out the practical application of it and others can do that better than I. It seems to me that there is one thing, however. Those of us who have imagined that by putting a broach in oil of cassia, and leaving it there about a minute, we have disinfected it, certainly have been mistaken, for even in sixty minutes it will not destroy germs. And I want to say a word more about these experiments. Now you know in the experiments with these germs we work with each organism at the maximum; i. e., we get a media in the condition that is ideal for the growth of a given germ. All germs do not grow in the media I have used, but the staphylococcus grows better in it than in any other. Now if you change the culture media one iota from the maximum you will inhibit to that extent the growth of your germ, no matter if you make it slightly more alkaline or slightly more acid. But that is not antiseptic action; i. e., I don't think so. And now a word about what Dr. Cook said in regard to chemical antiseptics. The chemistry of the proteid molecule has not been exactly made out. But we know it is composed of carbon, hydrogen, nitrogen, oxygen and sulphur. These atoms bear a relation one to the other. Now then, an agent that has the power of chemically uniting with the chemical composition of the protied molecule, no matter what it is, so that it is clean, the agent that will do that easiest will be the best disinfectant. I want to add a word further, that it is my opinion, after working with many, many, many of these agents, that the coming disinfectant will come to us from the biological chemist. It will be a synthetic preparation with a large number of atoms arranged in such a way as to be delicately attached one to the other, so that they will be easily broken up and chemically unite with decomposing material. I wish I could say something more regarding the practicability of these agents.

DR. EDMUND NOYES, of Chicago: What is the practicability of using Chinasol for instrument disinfection?

DR. MAWHINNEY: The only objection is that it discolors the instruments. But there are other agents, there are a great many more agents that we work with that are very efficient. Take thymol. Now thymol is a most potent disinfectant, very much more so than we have heretofore claimed for it; i. e., if my experiments are reliable. I realize, gentlemen, that all human kind are liable to make mistakes. All I can say is I have tried to be extremely careful. I have studied the literature on this subject and I find that experiments which other men have conducted along this line, they themselves to-day, in letters to me and in their writings, lay aside their findings and point out the errors in their work. Perhaps in a few more years I may be able to do so with mine.

If I have been able by these experiments to add even one iota to the sum of human knowledge and the progress of the profession I love, I am repaid. I thank you.

DISCUSSION ON REPORT OF SUPERVISOR OF CLINICS.

Dr. H. J. Goslee, of Chicago (opening discussion): Since Dr. Hinkins prepared his report Dr. Gilmer has had occasion to show up a very interesting case of extensive necrosis that he operated upon some eight or ten years ago that many of the Society have seen, and I would like to suggest that the report be supplemented, in the proceedings at least, with the case that Dr. Gilmer has shown.

Dr. J. G. Reid, of Chicago: The report of the supervisor of clinics made recognition of work that had been done by members of the Society in years past. I submitted to one of those most unpleasant situations by a member of this Society some thirteen years ago, who placed a gold filling in one of my teeth. It is there and is doing good service and I am sorry that I wasn't present when the Supervisor was making these examinations. The operation was done by Dr. Taggart a number of years ago at Quincy and has been very useful to me, and it is with pleasure that I speak of it now.

Dr. H. J. Goslee, of Chicago: Dr. Hancock of Joliet informs me that he has two fillings that Dr. Pruyn put in for him eleven years ago that are still in perfect condition and that he would like to have them included in the report.

Dr. S. F. Duncan, of Joliet: I wish to say that I have in a lower molar a gold filling that is still in good condition that was placed there by the late Dr. W. N. Morrison of St. Louis nineteen years ago, at a meeting of this Society held in Rock Island.

Dr. Thos. L. Gilmer of Chicago, introducing Mr. Little of Rockford, for whom he operated at the clinic last year.

Dr. Gilmer: I have never asked a special favor of this Society, or any other, to occupy time that I was not down in the program for. I did ask the committee, however, this year to give me a little time to show you my patient, Mr. Little, to let you see the result of the operation that I performed at our clinic last year for him. The patient had, for a number of months previous to my seeing him, a very severe neuralgia of the second division of the fifth pair of nerves. He had had internal treatment sufficient to indicate that no good could come from medicines, and naturally the next thing to be thought of was a surgical operation. The pain that he felt was on the side of the lip, and the side of the nose, by touching the lip, or if a draught of air blew on him, or if he ate or spoke he would have severe paroxysms of pain brought on in that locality. The operation was performed just one year ago to-morrow. The operation consisted of an incision being made just below the rim of the orbit on this line that you see here. The objection raised to reaching the nerve from this point is on account of the scar that is left, but the scar you see there is hardly noticeable. Under the present system of aseptic surgery we need not expect much of a scar, especially if we follow the natural lines of the skin, which I have done in this case. The soft parts were dissected up from the bone back to the orbital plate and back on the plate to the sphenoidal fissure, where the nerve passes across it and enters into the canal. The eye was supported during the dissection and after it by a small silver spoon, the concavity of which fitted the eye nicely and at the same time acted as a reflector. I then passed a large ligature around the nerve posterior to its entrance into the canal and by that means secured a better hold on it, and one that would not be so likely to break the nerve off, than if it were grasped with a forceps. While the eye was supported and protected by the bowl of the spoon, with a bur in an engine I cut through the thin plate of bone, exposing the nerve up to the rim, but not cutting through it. If I had cut through the rim to the infraorbital foramen it would have left a depression there which would have been disfiguring. The branch of the nerve which was given off to the anterior teeth prevented my drawing it out, so it was cut posterior to this, when it was drawn out by using considerable force. That portion of the nerve known as the leash was dissected out of the cheek and the portion having the ligature around it was drawn forward, and I worked back as far as possible toward the foramen rotundum and with a pair of curved scissors cut the nerve off as near the brain as possible. The patient returned to his home and was on duty there on the police force of Rockford in, I believe, seven days after the operation. The patient will tell you how severe the pain was before the operation and how much pain he has had since, and also of his general physical condition. The anaesthetized portion of the face includes the side of the nose, a part of the cheek, and there is a numb feeling in the two incisors.

Remarks made by Mr. Little of Rockford.

Mr. Little: I can't use all of these high phrases that the Doctor uses, but I will try to state the case to you as plain as I can. About two years ago,—that being a year previous to the operation,—I felt a little pain right at the lower edge of my lip.

I really thought that there was a sliver in my lip; it was a sharp, shooting pain; but I could find nothing, and in the course of a day or two it had gone and I felt no more of it for about a week, when I began to feel it again and a little more severe than it was the first time. And that pain gradually grew and began to run up the face from the lip and got up here to the lower edge of the eye, or at the edge of the infraorbital foramen, (Is that right, Doctor?) until the paroxysms of pain were something terrible. I couldn't explain the horrible pain in that facial nerve. I didn't, for six months before the operation, eat a particle of solid food; I don't think I ate a piece of beefsteak for ten months. I had to eat soup and oatmeal and spoon victuals. I went to every doctor in the city of Rockford. I took all of their pills and their powders and their lotions, and I found only one thing in my whole experience that gave me any relief at all, and that was Brown Sequard pills. I took those in strong doses until I became, you might say stupid, and Dr. Fritz advised me not to take any more of them, or to reduce the dose. I went to a Doctor Green there and he said, "I shouldn't wonder if there was an ulceration or something formed up in the cavity here, in the antrum,"—He raised my lip and bored a hole in the jaw bone, run a probe up around in there and washed it out clean and nice, but I never lost any pain; I still had it. Finally someone advised me to go to a dentist. "Why," I said, "good Lord, my man, my teeth are all sound, they are all solid, I never was in a dentist's chair in my life." But, anyway, after a while I went down and saw Dr. Clinton Helm. The first thing he did was to take a piece of ice and run it along on the edges of my teeth, and I imagined that when he struck this eye tooth the pain stopped, and I said, "Doctor, it has gone." "Well," he said, "there is a decayed nerve; I can just stop that right now." "Well," I said, "just get your machine and stop it." And he bored up into that tooth and pulled out the pulp, but it didn't stop the pain; I still had it. And I use Dr. Clinton Helm's own words. He said to me, "I feel a little chagrined about that operation." "Now," he said, "I want you to go to Chicago with me to-morrow morning and we will try to find somebody that will relieve you." We went to Chicago the next morning and called on Dr. Black. The Doctor sat down beside me and he tickled me under the chin, and said, "does that bring on a pain?" and I said, "you bet it does." He said to Dr. Helm, "You had better take him to see Dr. Gilmer." Dr. Black diagnosed the disease and told me about what would have to be done. We went up to Dr. Gilmer and he told me the same thing. He said to me, "To make it doubly sure, I want you to go over to Dr. McArthur and get his written opinion." I went over there and Dr. McArthur gave me his written opinion, which was identically the same as that of Dr. Black and Dr. Gilmer, and one or two physicians in Rockford. Dr. Gilmer said, "If you will come in I think I can relieve you." And I think about two weeks from that day I got a letter from Dr. Gilmer saying that he would give a clinic at the Northwestern University Dental School. He said if I would come in he would perform that operation for me and do the best he could. He sent me down to St. Luke's hospital to get me prepared for the operation, and I went up to the college about ten o'clock in the morning, and in about ten minutes the Doctor had me laid out on the table and I knew no more until I landed in St. Luke's hospital. But I will assure you, gentlemen, that I haven't had one second's pain since. I weigh 26 pounds more than I did one year ago. I staid in that hospital from Tuesday until the following Monday. When I came out of the hospital I called at Dr. Gilmer's office and he took out a few stitches and fixed me up a little, and I went home and went to work on the street, and I haven't lost a day from that day to this.

Now, I have a very high opinion of dental surgery. You can all swear by me, everyone of you. Now, I don't know but all of you or any one of you can do this operation and do it as successfully as Dr. Gilmer has done it. I only know that he did it and it is an absolute success in every sense of the word.

I have only one more word to say. I have heard it mentioned that this dental society might meet in Rockford next year for your convention. Now, I want you to come. We have got the nicest city that you ever saw in your life. It is the cleanest city you ever saw in your life. I am an officer there, sirs, as you will see, and don't you dispute me. We have a half dozen naphtha launches there, and if any of you want to see our city by gas light I will take care of you there.

Dr. Thomas L. Gilmer of Chicago (following Mr. Little of Rockford): If you will allow me personally to thank Mr. Little for his trouble in coming over here, and really, I think that what he has said to us about the disease previous to seeing any of us in Chicago, is well worth hearing from a layman, and I certainly am personally obliged to him for coming down here and treating us so well.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

THE PRELIMINARY EDUCATION QUESTION.

At the Paris Congress this question came up again—it will not down—through a resolution which had been prepared for submission on the closing day of the congress. It read as follows: Resolution 7. The preliminary training of a dental pupil before admission to a dental school should comprise a good literary education and an acquaintance with two living languages, English, German or French. In addition he should have received elementary scientific instruction and should have had manual or technical training. 8. The course in dental schools should comprise four years (of eight to nine months). 9. A graduate in medicine should be required to attend a dental school not less than two years. As soon as the above resolutions were read a member of the "Institut Odontotechnique" offered a substitute that "A medical education should constitute the requirement for admission to a dental school and that all the medical studies should be taken in a medical school." This was like the throwing of a bomb into a crowd of innocent spectators. As was stated by Dr. Brophy in another portion of this issue, the matter was discussed in a very lively manner. Finally, when most of the speakers had exhausted their eloquence, the question was put on the substitute, and it was lost, about seven or eight voting for it. The resolutions as read were then adopted with only five or six dissents. A sigh of relief went over the vast assembly to think that the question was settled.

Now, will the reader compare these resolutions with the action of the National Association of Dental Faculties and see if the world is not making progress in its requirements for the admission of dental students into colleges? Every year marks the advance in the preliminary requirements and we note with pleasure that the schools are willing to take a forward step whenever the body of the profession will support it. There is no question of the necessity for a thorough training in all the branches of study, comprising the grade schools and the high school, and the manual training idea is so full of value to the prospective dentist or surgeon that we hope to see this insisted upon (in some form) as a requirement for admission to a dental school. The Congress demonstrated in the most striking manner the value of an acquaintance with at least two living languages (see the speeches before the Chicago Dental Society in this issue). The writer would have felt at sea completely without this equipment. We hope to see this requirement or recommendation carried out also. The time is ripe for a four years' course. When will this be inaugurated—in 1901 or 1902?

WHAT ARE THE UNSETTLED QUESTIONS?

Is it true that perfection has been reached in crown and bridge work? Are the cements not capable of being improved upon? Is it true that a pulp can be mummified and the tooth never after give its owner trouble? Are the disinfectants used in the mouth absolutely suited for popular use? Has perfection been reached in a dentifrice? Are we doing all that should be done to care for the teeth of the poor? Is it possible to prevent dental caries with the methods now in vogue? Are the teeth carefully cleaned and scraped by dentists when performing this operation? What is known about the treatment of erosion or of receding gums? Is it possible to improve the methods of using porcelain? Can you answer any of the above queries?

EXTRA MATTER.

This issue of THE DENTAL REVIEW contains twenty-four pages more than usual in order to get in the views on the Paris Congress.

DOMESTIC CORRESPONDENCE.

Letter from New York.

To the Editor of the Dental Review.

Dear Sir:—The first society to "open the ball" this season was the New York Institute of Stomatology, which held its October meeting at the residence of Dr. S. E. Davenport, 51 West Forty-seventh Street, Manhattan, Dr. Chas. O. Kimball presiding.

For the first fall meeting it was very well attended, many from outside New York, especially from New Jersey, being present, in all about fifty.

Under the head of "Communications on Theory and Practice," Dr. Horace G. Bascom, of New Haven, Conn., read a short paper, presented models and devices used, in the case of "a rebellious superior cuspid moved into position after some surgical treatment." The cuspid was very much outside the arch. The occlusion of all the other teeth was very good. Acting on advice and following his own judgment, the first bicuspid was removed, recourse being necessary to some minor surgery to accomplish it. By reason of its position outside the arch and high up above the line of occlusion, much difficulty was encountered in forcing the cuspid back. The doctor had finally accomplished much, as his last model showed, when it became necessary for his patient, going away to school, to let the work rest awhile. Discussion upon the matter was begun by Dr. C. O. Kimball, who showed models and described a case where the right superior cuspid had not erupted but was plainly to be seen retarded. The models showed a very peculiar occlusion, giving the face a very much one-sided appearance. Various models showed the progress of the work, how an incision was made, the tooth exposed, turned, brought down and into place and finally the young gentleman for whom the work was performed was brought before the society and the results shown. The difference was marvelous. After some further examination of the various models and appliances and the exhibition of some mouth mirrors entirely of metal, *no glass* being used, the intention being to obtain a mirror which can be rendered antiseptic without injury to the reflecting surface, Dr. A. F. Davenport, of North Adams, Mass., read a paper entitled

"Stray Thoughts on Dental Hygiene." In the discussion which followed the participants went very "far afield," covering a wide range but very apropos to the subject. Much emphasis was placed upon the necessity for using the floss silk by several, some saying that the brush might be dispensed with rather than the floss. Instances were given of patients who claimed to have brushed their teeth thoroughly many times a day in whose mouths the floss revealed an unpleasant condition between the teeth. An incident was related of one practitioner, who in passing the floss between the teeth of his patients would adroitly cause it to pass near enough to the patients' nostrils to enable them to catch the odor, and thus often bring to their notice indirectly what would have been very annoying if done directly.

Much stress was placed upon the use of milk of magnesia by Dr. E. H. Raymond, which was emphasized by Dr. C. O. Kimball and Dr. L. C. Le Roy, who also advised its use internally. Dr. J. F. P. Hodson differed in regard to the use of milk of magnesia, having suffered disappointment in the results, and being much more in favor of precipitated chalk.

Dr. Raymond, in his remarks favoring the use of milk of magnesia, spoke of its being used in connection with hydrogen dioxide.

The essayist, Dr. Davenport, had suggested that much good might be accomplished for coming generations by having systematic instruction regarding the care of the teeth, in the public schools, but his idea did not seem to meet with much favor.

Dr. Chas. F. Allan, of Newburg, N. Y., in speaking on this point, said that he did not see how anything of the kind could be made compulsory any more than compelling regular washing of the face or hands could be.

Following this, Dr. T. W. Onderdonk, of New York City, read a paper on "His treatment of unfilled pulp canals in teeth for a long time comfortable with large crown fillings." He emphasized the fact that one should *know* when the roots were rendered aseptic, but in the discussion, as so frequently happens, the most important point was overlooked except by Dr. Kasson C. Gibson, who raised the question "Do we ever know absolutely that asepsis has been complete?"

Dr. George S. Allan spoke of some prominent practitioner of his acquaintance who rarely if ever fills roots, and led us to believe that the gentleman's success in saving teeth that were devitalized was equal to that of those who were the most careful in treatment. Dr. Onderdonk had skillfully divided his subject into several classes and presented the matter clearly, evidently being opposed in most cases to what is termed "immediate root filling."

Dr. F. Milton Smith while championing the latter method was forced to admit that it did not *always* succeed, and that on occasion even he had been obliged to extract or have extracted teeth so treated. Drs. S. E. Davenport, J. F. P. Hodson, L. C. Le Roy and K. C. Gibson, gave in detail their methods of root filling, which was really only incidental to the subject, some agreeing with the essayist as to the use of chloro-percha, another using eucalypto-percha, and some oxychloride. It was conceded that chloro-percha was liable to shrink or become offensive in time by absorbing secretions.

Dr. Gibson, however, as before remarked, observed that the essayist had been particular to refer to the need of knowing when asepsis had been obtained, and expressed himself as doubtful if it ever was complete.

After adjournment all repaired to Dr. Davenport's dining room, where the usual lunch was spread.

Dr. Davenport introduced many of us to his father, a veteran dental practitioner, a very pleasing man to converse with.

We are all home again (from Paris, you know) and things are likely to hum this winter. We learn of many things that are to be accomplished by the dental profession if all goes well, and shall strive to keep you posted. We have heard of a syndicate said to be financed by such men as Chauncey Depew, Ex-Post-master James, J. P. Morgan, et. al., which expects to "control the earth" if their prospectus is realized, in dental matters. Having purchased certain patents on mechanical methods in the making of rubber plates especially, and coating or lining almost any article with a veneer of metal, they propose, so report has it, establishing fine offices in every large city of the United States, with trained, gentlemanly, skilled operators in charge. This is no catch-penny, cheap advertising scheme, mind you. Everything is to be select, high-toned, quiet, private, anything you please. As they will control all these patents, no other office in the various cities can do the work and patients will be forced to seek them "nolens volens." Thus they calculate, we are informed. It has also been said that they aim to buy up all those dentists whose practices are about $3,000 per year, purchasing their practices for stock in the concern, and guaranteeing each dentist an income of so much per week equal to whatever he may say his average income has been. He is then to work for them, retaining his own patients and adding to them from the general public as necessary. They claim that the man whose income has never been more than $3,000 will be glad to accept a position where he can be sure of $50 to $60 per week, cash in hand, plus a dividend on his stock in the concern, without any responsibility. Fine, is it not? Where is this "gold brick?"

You will remember, no doubt, the great Windsor Hotel fire some years ago on Fifth Avenue, between Forty-sixth and Forty-seventh Street. The block has never been built upon, but rumor has it that a fine building to be called the "Windsor Arcade" is to be erected on the ruins of the old hotel with fine offices for doctors and dentists.

This night, the 8th inst., the Second District Dental Society, of Brooklyn, called its meeting at Dr. H. P. Gould's, 193 Jerolemon Street. Theirs, too, was the first meeting of the season and a good attendance turned out, although it rained hard, which by the way is the first relief our dried up country has received in many weeks.

The first business of interest after opening exercises was a resolution to donate from the society treasury $25.00 for the Galveston fund, and the passing of the hat among those present, which resulted in making the total $75.00 or more.

Alphonso Irwin, of Camden, N. J., was then introduced as essayist of the evening, and read his paper, "The C. D. I. of Paris, 1900." I think the several references that have been made and the many more that are certain to follow about the good times had on the "other side" and how royally each (essayist—"on this side") has been wined and dined, is a kind of put up job to aggravate the poor mortal (dentist) who could not go, and "kinder rub it in" about what he missed. Withal, Dr. Irwin's paper was quite interesting, and contained the information that the Paris affair of 1900, has been a great success, although there have been conflicting reports from others of our contingent. Dr. Irwin said that if it were not for the American dentists, the

Department of Clinics of the Third International Dental Congress would have been a gross failure.

He suggested a rule which should be operative at all clinics of all bodies; that of limiting the time of observation of any set of men watching an operation to say three minutes, then having others to take their places, that they, too, might watch the progress of an operation. If those much interested wished to see the operation again, let them resume place in line and wait for another opportunity. Drs. Keppy, Meeker, Jarvie and Hill all had something to say about Paris.

It seems that many societies relegated the appointing of delegates to the C. D. I. of the National Dental Association, and for some reason or other, proper recognition was not accorded many who went abroad with those credentials, but that others who had the endorsement of their local society fared better than those who held the N. D. A. certificates. The Odontological Society, of New York, seemed to have the call.

Dr. Meeker thought it was wrong policy for any dental society to relegate to any other body its right to name delegates to a convention.

There should be that pride in the State organization to permit that body to issue the necessary credentials. And so the bulk of the evening was given over to the consideration of the happenings abroad. It is to be presumed that we will have more of this diversion for some time to come, but there are other things in the wind. There will be some news for you, Mr. Editor, next month, methinks. "Just watch these columns."

Yours truly,
"THE BOROUGHS."

INTERNATIONAL DENTAL CONGRESS.

Philadelphia, Sept. 29, 1900.

TO THE EDITOR OF THE DENTAL REVIEW:

DEAR SIR:—The International Dental Congress of the Paris Exposition was probably the most remarkable gathering of dentists that the world has ever seen. When I first arrived it seemed as though the days of the tower of Babel had returned, so many were the different languages and ideas. But the French executive ability was astonishingly efficient. There were naturally some difficulties with papers and clinics, but under the circumstances, there were remarkably few. Owing to the variety of languages permitted I am not personally able to speak of the aggregate scientific value of the papers and discussions, but the names of the essayist were in this respect a sufficient guarantee.

The clinics were conducted in an almost ideal manner. The patients were provided liberally, and ample opportunity was given for each clinician to do his best work. The more I write on this subject the more enthusiastic I become. The histological and bacteriological demonstrations of Dr. Choquet most pleased me, but many other demonstrations were equally fine.

The Executive committee and their efficient subcommittees of the various sister countries have been justly rewarded by a consciousness of work well done, and when the proceedings are fully published the scientific additions to the world's dental knowledge will without doubt prove most valuable.

Of the French hospitality one cannot praise it more than by saying that it was worthy of the best French traditions. Everything that could be done to make the stay of the visitors comfortable was done in a quiet, unostentatious manner. Passes, excursions and banquets were everywhere the order of the day and night, until some of us listening to the fatigued groans of our stomachs fled to the land of Dutch treats.

But after all the confusion is over, after the waste paper and old programmes have been gathered and burned, after all the minor difficulties and complications have assumed their true perspective, those who took part in the convention can truthfully say that it was a brilliant success, and that the public-spirited dentists who engineered the great assembly have every reason to be proud of their work.

Yours very truly,

JOSEPH HEAD.

REVIEWS AND ABSTRACTS.

THE CARE OF THE TEETH.

The Cosmopolitan for October contains an excellent "Prize" essay on "The Care of the Teeth."

This magazine has made a worthy record for itself in persistently presenting to its readers popular articles upon subjects or phases of subjects of recent educational import. Educators and thinking people are coming more and more to question and search for the practical and reasonable facts and tests which help to solve problems in right living, and this essay is along those lines dentally. Dentists as professional men should be untiring in their efforts for the instruction of patients from childhood to old age, and Americans especially should learn how to properly care for this human machine; feed it, oil it and keep it clean or there will surely be an evolution downward.

The points in the essay are mostly well taken and cover the general ground very effectively, beginning with a little early history, the savage and modern state are compared, the functions of a perfect denture in digestion and perfect assimilation are noted; also its beauty and strength. Next the periods of infant dentition, their diseases and the necessary care from parent, physician and dentist, with some suggestion as to proper foods in maintaining and building up the teeth of the growing child.

Then the diseases to which the permanent denture is liable are described, viz., caries, tartar, spongy gums, "gum boils" and infections of the mouth. Cancrum oris is so common it should have been mentioned.

Conservative extraction is properly recommended, and only upon the advice of physician or dentist. Scrupulous cleanliness and the use of water, and simple preparations, mechanical and antiseptic for cleansing, are a very valuable part of the paper. We, however, should be exceedingly careful in recommending antiseptics for constant use lest the oral tissues lose their proper functions under constant and unnatural stimulation and harm be done even farther along the digestive tract.

The essay closes with a caution to watch the dentist that he be scrupulously *clean* with hands and instruments aseptic for his operations. This should make our whole profession blush indeed, and yet who can deny that in the offices of many careless men it is a just criticism?

MEMORANDA.

Dr. C. E. McGraw, of St. Paul, visited Chicago in September.

A graduate of the Harvard Dental School is doing efficient service in the United States weather bureau, Dr. E. A. Beals, class of '76.

The J. B. Lippincott Co. will soon be in a new home on East Washington Square in place of their old quarters burned last December. The Lippincott Co. publish the *International Dental Journal.*

We are under obligations to Alfred Burne, D. D. S., of Sydney, New South Wales, for late papers relating to the passage of the new dental bill in that far off country. It seems likely the bill will pass very soon now.

Revista Medico Dental Mexicana, for September, has a running account of the Paris Congress which is very good reading. Dr. C. A. Young is the editor. The journal has a new dress and is much improved in the last year.

OHIO STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of the Ohio State Dental Society will be held at Columbus, Ohio, December 4, 5, 6, 1900, at the Great Southern Hotel.

S. D. RUGGLES, *Secretary*.

One of the interesting demonstrations at the Paris Congress was given by Dr. W. E. Griswold, of Denver, entitled "A System of Removable Bridge Work." This was illustrated by actual cases, and the clinic was closely followed by the audience. It comprises a spring stud, to which a saddle carrying other teeth can be attached. We will publish it in full in our next issue with the illustrations.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

At the recent annual meeting of the Illinois State Board of Dental Examiners the following officers were elected for the ensuing year: President, Homer W. Pitner, Fairfield, Ill.; Secretary, J. G. Reid, 1006 Champlain Building, Chicago. Thirteen candidates were present for examination.

BORROWING?—ANOTHER CASE OF PLAGIARISM.

EDITOR OF THE DENTAL REVIEW:

Dr. Ottolengui, in the July number of the *Items of Interest*, gives what purports to be an original method of removing a gold crown. It is identically the same method which I gave to the Chicago Dental Society at their meeting in May, 1894, and which was published in THE DENTAL REVIEW in September of the same year, page 669.

It has been republished in several journals since that time.

Yours very truly,

CHICAGO, October 5, 1900. J. AUSTIN DUNN, D. D. S.

A MIXTURE OF PARALDEHYDE.

Paraldehyde	30 grains.
Syrup of raspberry	6 drachms.
Peppermint water	6 drachms.
Distilled water	1 ounce.

This may be taken in twenty-four hours in one or two doses.

Sweating hands may be relieved by using:

Tincture belladonna	1 drachm.
Eau de Cologne (off)	1 ounce.

Mix a few drops with vaseline and rub into the skin after the hands are clean.

NEW JERSEY STATE DENTAL SOCIETY.

At the annual meeting of the New Jersey State Dental Society, the following officers were elected for the ensuing year: President, Dr. F. Edsall Riley, Newark; Vice President, Dr. Wm. L. Fish, Newark; Treasurer, Dr. Henry A. Hull, New Brunswick; Secretary, Dr. Charles A. Meeker, 29 Fulton Street, Newark; Assistant Secretary, Dr. H. S. Sutphen, 24 E. Kinney Street, Newark. Executive Committee: Dr. H. S. Sutphen. Newark; Dr. Oscar Adelberg, Elizabeth; Dr. F. L. Hindle, New Brunswick; Dr. W. H. Pruden, Paterson. Membership Committe: Dr. G. M. Holden, Chairman, Hackettstown; Dr. J. L. Crater, Orange; Dr. W. W. Hawke, Flemington; Dr. A. Irwin, Camden; Dr. W. W. Woolsey, Elizabeth.

NORTHERN ILLINOIS DENTAL SOCIETY.

The 13th annual meeting of the Northern Illinois Dental Society will be held at Aurora October 24 and 25, 1900. Your committee has arranged an innovation in the usual program, as follows: A symposium on "Operative Dentistry" for the first two sessions, and a symposium on "Prosthesis" for the next two sessions. The subject of "Operative Dentistry," to include incidents of office practice, cavity preparation, obtundents, fillings of gold of any variety, amalgams, cements, gutta-perchas, dental pathology, abscess, root filling, asepsis, instruments and appliances, etc., to be followed by a general extemporaneous discussion. A symposium on prosthesis including crowns of gold and of porcelain, root preparation, when to crown, bridges of porcelain and gold, saddles, spans, etc., dentures, part sets with clasps, suction, etc., on gold, platinum or rubber, full sets on aluminum, gold, platinum and rubber, articulations, art arrangement, and selection of teeth with reference to temperamental indications, etc., instruments, apparatus, appliances,etc.

RECENT PATENTS OF INTEREST TO DENTISTS.

656124. Dental mallet or plugger, Ulysses G. Kinnison, Aberdeen, Wash.

655933. Dental appliance, Daniel O. M. Le Cron, St. Louis, Mo.

656596. Detachable artificial tooth, Robert E. Campbell, assignor of one-half to T. R. Edwards, San Francisco, Cal.

656180. Machine for manufacturing nerve broaches, etc., James H. Downie, Detroit, Mich.

656556. Dental cabinet, Charles H. Lind, assignor to A. M. McCarty, A. Hoeffer, and A. C. McDowell, Canton, Ohio.

656300. Dental root canal drier, David Perry, St. Paul, Minn.

656267. Artificial tooth, Bernard Rubinson, assignor to S. S. Bloom, Philadelphia, Pa.

656479. Toothpick, George W. Schellenbach, Joplin, Mo.

656887. Root irrigating device, Jerome A. Golibart, Sykesville, Md.

657002. Dental impression cup, Herman D. Osgood, Concord, Mass.

657199. Electric lamp for dental purposes, Byron E. Lawton, Providence, R. I.

657360. Dental chair, Frank Ritter, Rochester, N. Y.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

The American Dental Society of Europe gave a dinner at the Hotel Moderne, in Paris, August 9. The following among others were present:

Drs. G. C. Daboll, Paris; M. Godon, Paris; M. Lecaudy, Paris; Drs. Brophy, Chicago; Macfarlane, Frankfort; Walker, New York; Griswold, Denver, L. J. Mitchell, London; Guilford, Philadelphia; Croll, London; Dowsley, Boston; Spaulding, Paris; Gurling, Chicago; Patterson, Geneva; Burnett; Uruguay; da Silva, Paris; Portuondo, Madrid; Burkett, Kansas; Highlands. Madrid; Quintero, Paris; Meng, Paris; Cook, Chicago; Mons. Barrie, Paris; Westervelt, Frankfort; Heise, Cincinnati; Allis, Springfield; Bogue, New York; M. Bregnot, Paris; Dunn, California; Stewart, The Hague; Wedelstaedt, Minneapolis; Chance, England; Bromell, Philadelphia; L. B. Daboll, Paris; A. E, Chamberlain, Rome; Monk, Weisbaden; Farmer, London; Griswold, Hamburg; Jackson, New York; Williams, London; Hayes, Paris, Case, Chicago; Keppy, Boston; Payne, Cleveland; M. Gires, Paris; Weinberger, Para, S. A.; Rosenthal, Bordeaux; Rosenthal, Brussels; Rosenthal, Brussels; Small, Buenos Ayres; Keyes, Buenos Ayres; Levett, Boston; Morrison, St. Louis; Rathburn, London; Hinkins, Chicago; Pfeiffer, Chicago; Good, Chicago; Younger, Paris; Wassall, Chicago; Crane, Paris; Price, Cleveland; Foster, Baltimore; Barrows, Baltimore; Abbott, Berlin; du Bouchet, Paris; Rambo, Rio Janeiro; Keyes, London; Snow Smith, New York; Chase; Gallop, Boston; W. S. Davenport, Paris; Custer, Dayton; Bryan, Basle; H. A. Smith, Cincinnati; Hugenschmidt, Paris; Patton, Cologne; Gordon-White, Nashville; Royce, Tunbridge Wells; Michaels, Paris; Brigiotti, Paris; I. B. Davenport, Paris; Sauvez, Paris; Harlan, Chicago; W. Mitchell, London.

MOUTH WASHES TO PREVENT DENTAL CARIES.

The *Journal des Praticiens* of March 31, 1900, states that for the purpose of preventing caries of the teeth we must be careful to maintain perfect asepsis of the mouth, particularly during the sleeping hours; otherwise fermentation may take place in the organic material left between the teeth or against the buccal mucous membrane. For this reason Huchard employs the following antiseptic solution with good results:

Crystallized carbolic acid	1 drachm.
Eucalyptol	15 minims.
Menthol	7 grains.

Thymol	2 grains.
Alcohol (90 per cent)	3 ounces.

Enough cochineal to add proper coloring.

This is to be employed as a mouth wash after it has been diluted with three or four parts of hot water. Instead of this the following solution may be employed:

Crystallized carbolic acid	1 drachm.
Eucalyptol	15 grains.
Salol	30 grains.
Menthol	4 grains.
Thymol	2 grains.
Alcohol (90 per cent)	3 ounces.

Tincture of cochineal, enough to make a proper color.

This is to be employed in the same way with hot water.

Still another formula consists of:

Chloral	3 drachms.
Essence of peppermint	30 minims.
Alcohol (90 per cent)	3 ounces.

This should also be employed and mixed with hot water in the way indicated.

Still another formula is the following:

Chloroform	1 drachm.
Crystallized carbolic acid	1 drachm.
Eucalyptol	10 drops.
Peppermint water	3 ounces.

Also to be employed in hot water.

As another prescription in the nature of a dentifrice we may mention:

Carbolic acid and salol, of each	1 drachm.
Essence of peppermint	2 drachms.
Alcohol (90 per cent)	4 ounces.

Five or ten drops of this solution is placed in a glassful of hot water.

A powdered dentifrice may be made up as follows:

Salol	1 drachm.
Phosphate of lime and carbonate of lime, of each	5 drachms.
Light magnesia	5 drachms.
Bicarbonate of sodium	4 drachms.

Essence of peppermint in sufficient quantity to make the proper odor.

This is to be carefully mixed into a homogeneous powder, and can then be employed upon the toothbrush as a dentifrice.

IN MEMORIAM.

MANILA DENTAL SOCIETY.

RESOLUTIONS ON THE DEATH OF DR. THEODORE MENGES.

The Manila Dental Society, numbering among its members former associates and pupils of Dr. Theo. Menges, having learnt with great sorrow of his demise, while yet in the prime of manhood, and at a meeting held this day have adopted the following resolution, of which a copy is ordered to be spread upon the minutes of the Society, one to be sent to his sorrowing widow, and others to the dental journals of the United States:

WHEREAS, Our departed friend, by his untiring energy, by his constant devotion to duty, has done more than his share for the uplifting of dental education in the United States, and

WHEREAS, A host of his former pupils have each and all lost not merely a teacher, but a true friend, adviser and counselor, whose constant aim was the betterment of their condition, now therefore, be it

Resolved, That in his death the dental profession has lost one whose efforts on her behalf have always been elevating, his former pupils have lost a worthy friend, his wife has been bereaved of a loving husband and constant companion, that with all of these we sympathize and mourn, keenly feeling while far away from our home and friends, that in his passing away we, too, have lost.

MANILA, P. I., August 6, 1900.

LLOYD R. HAWLEY,
W. G. SKIDMORE,
LOUIS OTTOFY.
} *Committee.*

MANILA DENTAL SOCIETY.

RESOLUTIONS ON THE DEATH OF DR. GEORGE H. CUSHING.

The intelligence having been received by the members of the dental profession of Manila that the spirit of the venerable Dr. Geo. H. Cushing had passed away, and recognizing the great loss to the dental profession by reason of his death, and furthermore feeling that the beneficent influence of his long and useful career as a practitioner and teacher are operative in even this distant land, the members of the Manila Dental Society have come together to do honor to his memory, and have adopted the following resolutions:

WHEREAS, the Almighty in His infinite wisdom, has spared the life of our friend and teacher, until, though past the alloted life of man, he was still in possession of the strength and power of mind to be serviceable as a teacher, and,

WHEREAS, the world is better by reason of his busy life, the dental profession richer in her store of knowledge and the hearts of his friends sorrowful in the consciousness of his departure from among them, now, therefore, be it

Resolved, That the members of this society, by this action, add their tribute to his worth, express their sincere and heartful sympathy to his bereaved family and to the dental profession of the United States, and that this resolution be entered of record, a copy be sent to the family of the deceased and to the dental journals for publication.

MANILA, P. I., August 6, 1900.

LOUIS OTTOFY,
W. G. SKIDMORE,
LLOYD R. HAWLEY. } *Committee.*

DR. WM. DEANE TENISON.

Died, March 11, 1900, at his home in New York City, from pneumonia, Wm. Deane Tenison, D. D. S., in his sixth-ninth year.

Dr. Tenison was born in Dublin, Ireland, in 1832. In 1858 he became a pupil of Dr. Crater, of Paris, France, and in 1860 began to practice in that city. Shortly after coming to this country he married, in 1863, in Brooklyn, N. Y., Miss Margaret Adelaide Bagley. His wife preceded him in death.

Having undertaken the course of study of the New York College of Dentistry, he was graduated with the class of 1876; and he ever cherished the comradeship of fellow-graduates of that institution as a member of its alumni association. He also became a valued member of the First District Dental Society, and in resolutions adopted by that body his professional brethren pay the following deserved tribute to his memory:

"In the death of Dr. Tenison the profession has lost a distinguished member. As a man he was genial and affable, as a dentist he was skillful and conscientious. Entering upon the study of dentistry at an early age when all was crude, he wrought his way to success and high position by zeal and industry."

Dr. Tenison is survived by his daughter, the wife of George T. Warford, M. D., of New York City.

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ORIGINAL COMMUNICATIONS.

The Care and Management of Children's Teeth.*

By A. H. Hipple, D. D. S., Omaha, Neb.

The care and management of children's teeth bear the same relation to the care and management of the teeth of adults as the care and management of children's minds bear to the care and management of adult minds.

The importance of early mental training is now recognized by every one. The kindergarten is one of the most important features of our modern school system, and psychologists are devoting more and more attention to child study. But kindergartens and societies for child study are of recent origin. It took the world 6,000 years to learn the importance of properly caring for the mind of a small child, and so we, as dentists, may be pardoned if we have to some extent overlooked the importance of properly caring for the teeth of small children. Where children have been presented to us with diseased temporary teeth, we have directed our efforts toward relieving their sufferings and have attempted perhaps to restore the teeth to usefulness, but to a great extent we have lost sight of the important bearing of the case, not only upon the permanent teeth, but upon the future health and life of the individual. When we come to realize fully that upon the care and management of the temporary teeth depends to a great extent the character of the permanent teeth, and that upon the character of the teeth depends to a great extent the condition in which the food reaches the stomach, and that upon the condition in which the food reaches the stomach depends to a great extent the nutrition of the individual, we see the importance of the subject.

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*Read before the Nebraska State Dental Society.

The teeth differ in many respects from the other organs of the body; the bones of a child gradually increase in size until maturity is reached, whereas the crown of a tooth is as large at the time of its eruption as it will ever be. All the other tissues of the body are endowed with recuperative powers whereby injuries are repaired to a greater or less extent, but the teeth, or at least the solid portion of the teeth, are possessed of no such attributes, and when a portion of a tooth is lost by accident or disease nature does nothing to repair the injury. Moreover, the character of other organs and tissues frequently undergoes a complete transformation within a few years. The weak lungs become strong, the feeble heart becomes active, the flabby muscles become firm, and from a delicate condition of health the individual is changed into a condition of robust health. On the other hand, as the result of disease retrograde changes may take place in a few days, or even hours, that completely alter the condition of the organs and tissues and render them functionless. Except as the result of accidental influences, however, no such changes take place in the teeth. They do not enlarge or contract. They are not hard to-day and soft to-morrow. They are not subject to disease at some time and immune at others. It is true their surroundings are not always the same and their health depends to some extent upon their surroundings. The jaws, the gums and the oral fluids change, and these changes affect the teeth; but so far as their own character is concerned as they come into the mouth so are they. If they are well developed and perfect in structure they will as a rule retain their usefulness even if neglected. On the other hand, if they are poorly developed and imperfect in structure, they can only be preserved by constant care and attention.

Having a practical as well as theoretical knowledge of these facts, we as dentists have come to be almost fatalists in regard to the teeth. We take them as we find them and do the best we can under the circumstances, but as a profession we do very little toward improving the quality of the teeth of our patients. I believe that it is just as easy to develop strong teeth as it is to develop strong muscles, but there is one important difference. The character of the muscles may be influenced at any period of life, while the character of the teeth can only be influenced during the process of their development. The crowns of the temporary teeth are developed at such an early period that we cannot do much to influence them; but the greater part of the development of the permanent teeth takes place while the temporary teeth are in position, and upon the care and management of the temporary teeth depends the character of their successors. To my mind it is simply a question of exercise. If the temporary teeth have plenty of vigorous exercise, the permanent teeth will be hard and strong. If the exercise is wanting the teeth will be soft and imperfect.

In order to make the connection clear, it may be well to refer to a few well known facts in physiology. The development of a part depends upon the nutrition of the part, the nutrition depends upon the amount of blood the part receives, the amount of blood received by any part depends upon the demand for blood at that point, and the demand is created by some form of exercise. If you wish to develop a strong arm, you exercise the arm. That exercise creates a demand for more blood, the part is better nourished and development follows. On the other hand, if you tie up an arm so that it cannot be used, the quantity of blood it receives gradually decreases, and finally the muscles atrophy and disappear.

We are familiar with the fact that use and disuse have much to do with the development of organs, and know that in the evolution of civilized man from the savage, the brain has increased and the jaws have decreased in size. The civilized man has much more use for his brain and much less use for his teeth than the savage. Instead of tearing raw or half-cooked flesh from bones with our teeth we use knives and forks; instead of eating our vegetables raw we have them served well cooked, and with this gradual disuse of the teeth there has come about a gradual deterioration of the dental organs. But we have applied this principle to the race rather than to the individual. While it is undoubtedly true that the extent to which the people of a country use their teeth for eight or ten generations will determine in a general way the size of the jaws and the structure of the teeth at the end of that time, I believe it is just as true that the extent to which an individual uses his teeth up to the time he is eight or ten years of age will determine the size of his jaws and the structure of his teeth for the rest of his life.

In this connection it is well to remember that the jaws of a newly born child contain the germs of twenty-four permanent teeth in various stages of development. Although these teeth do not make their appearance in the mouth for six or more years, the process of calcification is continually going on. With the first molars, the incisors and the canines it is well started by the end of the first year, with the biscupids at the end of the second year, and with the second molars by about the fifth year. Nature intended that while this process of calcification is going on the jaws should be exercised, and to that end seems to have given small children what might be called a biting instinct. Even before the eruption of the temporary teeth, babies use their gums upon everything they can lay their hands on. Not only that, but, by the end of the second year, nature has usually provided them with a perfect temporary set of teeth. These teeth are strong enough and hard enough to masticate any kind of food, and nature intended them for vigorous use, but as a matter of fact they are used very little compared with the other organs of the body. The child uses the muscles of its legs, its arms and its head, its eyes and its ears are in service continually, its little brain is active, and as a result all these parts are well supplied with blood, but the jaws and teeth are hardly used at all. Soft bread made from fine flour, biscuits soaked in milk, meat cut into small bits, and vegetables in a pulpy condition form the chief food of the little three-year-olds. As a result of lack of exercise the jaws receive only a small quantity of blood and poorly developed teeth are the result. If parents saw to it that their children used their first teeth vigorously, the second set would cause them but little trouble. In other words, if a demand is created for sound teeth, nature is likely to supply the demand.

It is not hard to teach children to chew hard food. They take to it naturally. Unless its taste has been perverted a healthy child with healthy teeth would rather eat a crust than soft bread, would rather chew a biscuit than eat it with a spoon, and would rather gnaw at a bone than eat hash with a fork. Nature prompts the child to exercise its teeth and jaws just as it prompts a puppy to spend hours gnawing at a bone.

I do not wish to be understood as saying that in any one individual we can entirely overcome the effects of heredity, but I do believe that the general application of this theory would result in a marked improvement in the teeth of the rising generation.

Neither do I wish to underrate the importance of the ordinary prophylactic measures. Cleanliness of the mouths of even the smallest children should be insisted upon. They should be provided with suitable toothbrushes and taught how to use them. They should be given to understand that particles of food if allowed to collect between the teeth not only injure those organs but taint the breath and make them undesirable as companions. An appeal to the pride of children will sometimes bring about results that cannot be attained in any other way.

As dentists, if the theory I have advanced be correct, we have two duties to perform. In the first place, we should do all in our power to educate our patients in regard to the importance of the temporary teeth and the necessity of having them vigorously exercised. In the second place, we should see to it that the temporary teeth of such children as may come under our care are in a condition which will allow of their being vigorously exercised. A child cannot and will not properly chew its food unless its teeth are in good condition. Parents sometimes think it is not worth while to have temporary teeth filled in view of the fact that they will soon be lost; but if they were made to understand that by neglecting these teeth they were doing the child an irreparable injury, and that by having them properly attended to they would promote its future welfare, few of them would hesitate to incur the necessary trouble and expense.

PRESIDENT'S ADDRESS.*

BY W. N. MURRAY, D. D. S., MINNEAPOLIS, MINN.

In writing this address, I have deemed it best to touch only upon those subjects that in my judgment most deeply concern us, both individually and as a whole. It is difficult to come before as representative a body of men as comprise this society, and bring forth anything new. I shall, in this paper, touch lightly upon the following subjects: The younger members of the profession, our increasing responsibilities, our State board, dental patents and matters relating to education.

I can only assure you that I feel deeply the honor you have conferred upon me by making me your president for 1900, and I sincerely hope that you may feel that the mistakes that I may make while representing you will be errors of the head and not of the heart. Personally, I have always loved the Minnesota State Dental Association, and I can reassure you that I am ready and willing at all times to spend my time, energy and money for the betterment of this society; and I think that every member should feel that the same responsibilities, and that the success of our meetings are largely dependent upon you individually. We are indeed fortunate in the selection of our executive committee for 1900. The utmost harmony has prevailed. The members have been untiring in their efforts to make this meeting a success. Especial mention should be made of our chairman, Dr. F. H. Orton, to whose credit should be given the entire success of this meeting. He certainly is worthy of any recognition that this society may see fit to bestow. It is particularly gratifying to note the ready response we have received from the younger members of the profession, and right here I wish to impress upon the older members the fact that it is not only your privilege, but your duty, to encourage, to invite and to thoroughly inculcate upon these young men the ideas of professionalism that you have been years in attaining. Let us not look upon these young men as a menace to our future income or as in any way usurping the rights of the older practitioner; on the contrary, let our professional life be such that it will be a guiding star, an ethical diadem, that the young man can look forward to with the same longing and satisfaction that he looked for his diploma while in college.

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*Read before the Minnesota State Dental Association, at the seventeenth annual meeting held in Minneapolis, September, 1900.

The general trend of all modern business and modern business methods is to accomplish a great deal in a short space of time. Can this be applied to our profession? While I should regret very much to be placed on record as advocating rush operations in dentistry, yet I firmly believe that the operator, by systemizing everything that he does, can save much valuable time, both for himself and his patient. I think one of the greatest incentives for a thorough investigation of Dr. Black's teachings is the complete systematization of everything that he does, and, gentlemen, I firmly believe that the more we study this system and practice it, the more skillful will be our operations, and they will be performed in very much less time, owing to the fact that you will know exactly what you wish to do before you disturb a particle of tooth structure. You are perhaps aware that a bill is before the United States Congress, placing certain restrictions upon the granting of patents to be used in the practice of our profession. This measure should be studied carefully, and every member of the profession should lend their influence to see that this bill becomes a law. The experience of the past and the annoyances that the profession have been subjected to by patent sharks are incentive enough for every member to be fully alive to the importance of this subject. It is a deplorable fact that in the past there has always been a lack of unanimity among the profession upon these matters. I would suggest that a committee be appointed to investigate this subject, and to act for this society.

OUR RESPONSIBILITIES IN DENTAL SURGERY.

As regards this subject, it seems to me that dental surgery is the most complete farce in the whole profession. Years ago, if the dentist had a fatality or a negative result from an operation, he was excused from blame, for the reason that the public and even the dentist were ignorant of the true bacteriological reasons controlling the same. Not so to-day! The daily press is an educator of the people; the masses are flooded with literature upon all the modern scientific laboratory bacteriological experiments. How have we met this issue? Let us be honest. We have met it by charging the old blacksmith barber shop fees of 100 years ago, for all dental surgical operations. Can we ever hope for the same recognition from the public that is accorded our medical brethren, as long as this condition exists? I do not wonder that many of the colleges have changed their degrees to D. M. D., instead of D. D. S.

The past year one of our members was forced to defend himself in the courts in a malpractice case, involving $30,000, for supposed damages sustained by the plaintiff in the extraction of a third molar. There is hardly an issue of our dental journals that some case of this kind is not reported. I fully realize that the province of this society is not the regulation of dental fees, consequently I do not look for any discussion upon this phase of the question, but I do look for a general expression on any subject that will upbuild and uphold the dignity of our profession. The renowned writer, Herbert Spencer, has aptly written that we must be at peace with our environments, and gentlemen, I believe that we are a long distance from the goal of peace, with the modern existing environments that encompass us as regards dental surgery. What position does the Minnesota State Dental Association occupy as regards our State dental board? It has been forcibly intimated to me that we are a political body; in one sense this is true, but not in the partisan sense of the two great political parties. This society has never asked a man to divulge his partisan political principles in the selection of names to present to our chief executive. However, I believe that we have erred in the past in not submitting to our governor a complete list of our membership, and advising with him before we select our names for confirmation. The experience of every dentist who has come in contact with our chief executive in regard to these appointments is that we are met with the question, are you not usurping my powers in office in submitting to me these names? Does it not flavor a little of dictation? Now, if a complete list of our membership (before our annual meeting) was placed before our governor, and the question was asked him, what names from this list do you desire us to submit to you, it seems to me that we would certainly be placing ourselves in a more liberal light, and that from so large a list as comprise our entire membership it might have a political significance that any executive would hesitate to turn down. Our law is unfortunately worded, so that if the head of our State government sees fit, we are compelled to eat crow. I do not believe that we have any members of the Minnesota State Dental Association who are not competent to faithfully carry out the provisions of our State dental law, and who would not do so if appointed to our State board.

EDUCATION.

It is with great hesitation that I approach this subject, owing to the experience of the past, also to the supposed encroachment of our code of ethics in bringing any matters pertaining to education to the public notice. I believe that this subject of oral hygiene is of the greatest importance, and that the dental profession is the only proper medium to convey the same, and that when properly presented, it will be productive of a vast amount of good. Some six months ago I was approached by one of the principals of our public school buildings, and asked if I would give a talk or lecture to the pupils upon this subject. I declined at that time, but assured the principal that I would bring this matter before our State society and see if some plan could not be formulated whereby this subject of oral hygiene could be properly brought before the schools of the entire State in such a manner that there would be no objection from the profession, and that would meet with the approval of the educators. Since that time I have corresponded with some of the leading educators, and we can look for the endorsement and coöperation of the educators, provided the State is relieved from expense in this matter. Briefly I will outline to you a plan that I think would be feasible. I am indebted to our superintendent of city schools (Dr. C. N. Jordan) for many useful suggestions in this matter. Suppose that an able committee of four be appointed from this society to meet a like committee of educators, and that a short course of instruction in oral hygiene be formulated by them. The dentist knows what is of paramount importance for the child to know as regards cleanliness. The educator knows best how to get it before the child so that it will be perfectly plain.

This committee could get together at the Teachers' Institute that meets in St. Paul between the holidays, and they could then determine whether this was practicable or not. I think that by means of charts and pictures this subject could be more forcibly brought to the mind of the child. This subject could be brought into most of the schools of our State without but a limited number of dentists appearing in public.

It would be advisable to bring this before the educational institutes, the normal schools and the summer school at the State University, and instruct the teachers, so that they in their capacity would be fitted to impart it to the pupil. In this manner we would be able to reach a large number of schools. I have been assured by the director of the summer school, also by most of the normal school presidents, that they would do what they could to advance this movement. It might be well, in case of action by this society, to have it understood by those teachers who could not avail themselves of the opportunity of the summer schools and institutes, that all of the information necessary could be procured from the secretary of our society. In closing, I will say that I sincerely hope that this society will be governed in their deliberations by that same good sense and judgment that has always characterized them in all of their meetings. I shall always look for an uninterrupted growth of the Minnesota State Society, both numerically and in all scientific matters pertaining to our profession. Gentlemen, I thank you for your kind attention.

THE CARE OF CHILDREN'S TEETH.*

BY G. P. MENDELL, D. D. S., MINNEAPOLIS, MINN.

The history of the world has divided itself naturally into epochs, each epoch taking its name from the dominant characteristic of the period. John Fiske has called this nineteenth century a century of science; old sciences have been modified, new sciences have been developed. Our profession, formerly classed as a mechanical art, has in this century risen to the dignity of a science. The dentist of to-day is not a mere tooth cobbler. On the contrary, he is an educated person, often scholarly, who is not only well grounded in practical mechanical principles but is also a skillful diagnostician of the pathological conditions of the teeth and other tissues of the oral cavity, and in addition is something of an artist. Not the least important work of the latter quarter of this century is the attention which has been devoted to methods of prevention. The preservation of the temporary teeth is now generally allowed to be of great importance, first because the child needs his teeth to masticate his food; second, because by their retention we get the best possible development of the dental arches; and third, by our careful supervision we secure the child against unnecessary suffering.

The first step in the care of children's teeth is the instruction of the mother. She must be forcefully impressed with the importance of feeding the child good, nourishing food. That is a matter which the family physician generally attends to, but it will do no harm for the dentist to emphasize its importance.

Cleanliness is to be insisted upon. It is not only a matter of common decency, but, as Prof. Miller, of Berlin, has so ably shown in his remarkable experiments demonstrating the germ theory, the presence of decomposable matter is one of the essentials to dental caries. The child should be provided with a small soft brush and taught its proper use. In connection with the brush a warm, weak solution of boracic acid will be found effective. A child two years of age is certainly old enough to be introduced to a dentist. Should there be no occasion for an operation, or only a minor one, so much the better; the child's first impression of his dentist will have been favorable. And right here I want to say that I consider it better to do an imperfect operation rather than to hurt the child much. The memory of excessive pain is lasting, and in many cases the patient never overcomes his early formed aversion to a dentist, which is a trial to himself as well as the dentist.

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*Read before the Minnesota State Dental Society.

Green stain, so commonly occurring upon children's teeth, disintegrates the tooth structure and should be removed. It can easily be done with a rubber disc and pumice moistened with hydrogen dioxide.

Where decay occurs upon the approximate surfaces of the anterior temporary teeth it may be cut out with a fine carborundum disc. Cut liberally, leaving a V-shaped space, which is self-cleansing. Slight decay may be cut out wherever found when the patient will not submit to filling. Posterior teeth when so treated may have the fresh cut surfaces touched with nitrate of silver. The pulp in children's teeth should always be conserved when it is possible. When conserving a pulp it is well to counterirritate the gum over the tooth after inserting a temporary filling of cement. Broken down deciduous molars which it is desirable to save for grinding purposes, may be crowned. Make the crowns of platinum, which can be rolled thinner than gold (thereby saving expense) and can also be more easily crimped into position. Not much preparation is necessary for the crown; should the pulp be exposed cap it, then trim the tooth to the best of your ability and cement crown in position, trusting to the mother that the little patient keeps his mouth clean. In the case of sixth year molars which, because of their early eruption, are so frequently mistaken, by the mother, for temporary teeth and for that reason neglected, save them if it is possible to do so. But where the diagnosis indicates either an incipient abscess or one of long standing the prognosis is unfavorable.

Conditions which in an elderly person's mouth readily yield to treatment prove obstinate in a child's mouth and unless the tooth can be made perfectly healthy it is much better out than in the mouth. It does mischief to the surrounding tissues. One dentist has said that a great many dead pulps would be best treated by a pair of forceps skillfully applied. As to the time for extracting the temporary teeth it may be said in general *not* until the emergence of the permanent ones. Time must be allowed for the absorption of the entire root of the tooth, when the crown can be picked off without pain to the little patient. When it is necessary to do extracting of a painful nature it is advisable to administer an anesthetic, preferably nitrous oxide gas. Children take an anesthetic well and the satisfactory result warrants the extra time and expense. The correction of irregularities it is well to delay until nature has given us her ultimatum as to what she intends to do in that direction, after which we are warranted in emulating Torquemada, our justification as his, the righteousness of our cause.

THE DENTIST IN THE ARMY, FROM THE STANDPOINT OF AN OLD SOLDIER.*

BY R. B. TULLER, D. D. S., CHICAGO, ILL.

The subject I have chosen for a paper this evening seems pertinent at this time when there appears to be a reasonable prospect of Congress passing a bill authorizing the employment of dentists in the army. (And why not the navy as well?) That such an innovation in the army equipment should be made goes without question, I think, among dentists; and from my standpoint as a dentist, citizen and old soldier I cannot see where a question could be consistently raised by any one. The only objections made I believe are made through sheer prejudice.

It cannot be denied that the services of a dentist are needed both to examine teeth of men enlisting in the service and to care for them during service, for it is not within the province of the physician to do this properly; and yet poor teeth—poor powers of mastication—are the cause primarily of many ills that once established call for the doctor as well as the dentist. On grounds of humanity it is due the soldier (and sailor) to provide dentists; and it is due the government to help minimize the physical ailments that take men from duty and reduce the effectiveness of the forces. The matter of toothache alone, a frequent trouble in soldier life, is a hardship of great severity that can be avoided, say nothing of other ailments due to poor mastication (poor teeth) that could also be avoided, thereby increasing health and reducing disease in the army, an important matter of economy as well as of comfort and efficiency. Men who would face the cannon's mouth without flinching and who suffer from painful wounds heroically, become abjectly craven and unmanned with persistent "howling" toothache. What is the remedy for such troubles in the army now? The forceps. Destructive measures that continued from time to time bring about marked inefficiency in one way and another and produce conditions on which many pension claims are based.

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*Read before the Odontographic Society of Chicago.

It is due the soldiers that relief from unbearable pains be provided, other than the loss of the offending member; or better that provision be made to prevent such ills by adding dentists to the army, and it is due as a matter of efficiency and economy.

No one will argue, I think, that the physician is qualified to care for the teeth, even were he provided with the complete and varied outfit necessary to a dentist. It is a sad commentary to make in this advanced day of the world, but we all know not a few physicians whose knowledge is supposed to comprehend the entire human make-up, who know as little about the human teeth and what is proper for their care and preservation as they know about cat's teeth. As an instance of the understanding of some of them I will relate an experience of my own with one who held a professorship in a medical college in the city. I was requested to assist in getting into the antrum of a patient by boring a hole through the second superior molar—through the tooth mind you, and a live one at that. As my diagnosis, together with a history of the case satisfied me that there was no disease of the antrum, I declined to bore into the chamber, through the tooth or otherwise, and it was with some difficulty that I prevailed upon the doctor to wait until more marked symptoms should appear before seeking the assistance of another dentist. There was nothing but occasional slight neuralgic pains about the eye that led to the doctor's conclusions of antral trouble, and I found sufficient cause for the symptoms in carious teeth.

Of course toothache in itself, while representing pain in the superlative degree often, does not supply our basis for a plea for dentists in the army, yet from the soldier's point of view that is the first thing thought of in connection with the question.

I do not intend to take your time in pointing out the many things that go to show that dentists should be employed in the army, for you fully understand them as well as I, but I wish to say a few words on the economic side of the question. To keep soldiers and sailors up to the highest point of efficiency at all times in the way of health and physical endurance, is the study of all nations, and the expense of hospital service and transportation for the sick in all armies is an enormous item, and the sick are always, of course, a handicap to efficiency numerically and in quality. Now we are not going to claim that the advent of the dentist into the army is going to mark the abolition of hospitals with its attendant expense, but there isn't a question but what poor teeth and consequent poor powers of mastication are primarily the cause of many ailments and also of their continuation when once established from whatever cause. How often has it been in evidence before our societies and in our dental journals, as well as with each in his personal experience, that repair of the teeth or introduction of artificial dentures of proper kind has restored health vitiated by indigestion and dysentery. How often have we had the same evidence of cure of persistent and intense neuralgia. I cured not long ago a case of neuralgia of years standing and of increasing intensity by opening into an apparently sound tooth and removing calcareous deposits from the pulp chamber and root canals. It was a case that had been treated for long periods by two or three physicians. It is well known that one of the greatest troubles the army has to contend with in times of activity is diarrhea, and the chronic cases on the pension list I believe outnumber anything else for which pensions are allowed. Many of those cases were occasioned by improper mastication due to poor teeth or loss of teeth.

If given a fair opportunity, I have no doubt the dentist in the army will prove a valuable accessory. In the first place, he should be called upon to examine the teeth of all recruits, for he would find many serious deficiencies that the physician would overlook, and then the periodical inspection and subsequent repair of deleterious conditions should be compulsory. Markedly good results are sure to be apparent in due time. We are all agreed on that. Thus the dentist in the army would prove an important factor in the physical efficiency of our fighting forces, and would likewise prove an economical investment in the matter of hospital expense and pensions.

The bill now before Congress is not all that we had hoped for, for we had hoped to have a bill that would authorize the regular commissioning of dentists as is done with physicians; but when we understand that much the greater number of the doctors now employed in the army are employed on the contract plan than those holding commissions regularly, we can hardly find fault with a bill that puts us at present on a contract basis. This, if the bill becomes a law and the dental corps is properly organized, will give us an opportunity to demonstrate all that we claim. We are quite satisfied with such an opportunity, provided it is fairly opened to us. But the bill provides that graduates of medical as well as dental colleges may be appointed on the board of examiners and supervisors, and in the rank and file also of the corps, and that the surgeon general shall select the three men who shall compose this board. I am inclined to think that Surgeon-General Sternberg is disposed to give the dentists a fair show in this selection, and we think a fair show would be to appoint only regularly qualified dentists for those important positions. If he does that, and the board is authorized and empowered to arrange the standard and conditions by which the subordinate appointments are made, then we feel that we will be on a fair footing. If, however, he should have a leaning to medical men and appoint three M. D.'s, or even two, a majority, then I can see how all the effort of years which has culminated in this bill may be perverted or defeated. To be sure three men, who have been educated as physicians but have practical experience as dentists, might fill the places intelligently, and if rightly disposed might be just to the dental profession; but in all fairness it would seem to me but just to put three regularly graduated dentists in those positions. Let physicians go into the regular medical corps. The words "medical and," preceding dental colleges, should be stricken out of the bill, and I hope influence may be brought to bear to do it before the bill becomes a law. There is another change that ought to be made also, and that is the addition of a provision for the purchase of the necessary supplies for a dental corps. If I understand correctly, the lack of such a provision may defeat the purpose of the bill.

Now as to the duties of this board, it is assumed that they shall not only fix the standard of requirements and qualifications for the examination of all others who shall be appointed as army dentists, but shall prosecute such examinations and more important than all else determine on the general course of practice that must be pursued. To be efficient and to bring about desired beneficent results to all concerned approved methods must be the rule and guide of the corps, and a system of records and reports should be arranged so that the Board of Supervisors, or anyone concerned, may know what is being done, and how done, and so that proper data shall be at hand for statistical purposes. We all know that a dental corps properly organized and directed can make a record that will settle in our favor all question as to whether the dentist is a desirable and consistent factor in the army or not. But it is important, as they say to young people just launched in matrimony, that we get started right. If the purposes of the bill are perverted, if political influence and favor of the powers that be put the wrong men into the places, and more particularly at the head, then may we wish no effort had ever been made. So far as it is left to influence, plan and devise, the dental profession ought to see that the entire corps is made of men who are intelligent and capable and who will conscientiously perform the service for which they are engaged, to the end that the soldier and the government shall be benefited, and the dignity and worth of the dental profession shall be upheld. We must realize that but few men settled in practice will be seekers after appointments, and with these few there will be a horde of incompetents who will hope to get a job through political influence. Political influence will no doubt be felt, but let it be as it is with appointments for West Point or Annapolis, conditioned upon a fair and fixed standard of real merit.

If anyone has an idea that the position of army dentist will be a "soft snap" and "easy job," they should be disabused of that notion. One who has filled such a position in an unofficial way, at an army post, tells me that in a regiment of from 800 to 1,000 men, the dentist will have all he can do month in and month out. But this is due greatly to the fact that recruits are not carefully inspected as regards the teeth at the present time, and no preventive measures have been in use. Should the dental corps be established, it would probably be made compulsory on the part of the soldiers to have the teeth regularly examined and cared for. How well the dentist knows the truth of that old proverb, "A stitch in time save nine." Could we see all our patients regularly at stated intervals, there would be fewer large fillings and fewer artificial appliances, and less pain and discomfort in the dental chair. An army experience under compulsory rules of examination may in due time supply some official and gratifying data for our profession.

The dentist in the army will have plenty to do if so disposed, and no doubt requirements will make him disposed, and perhaps many who have thoughts of seeking these places do not understand how binding the contract arrangement is on his part, and how little so on the part of the government. That is to say, the government may engage a dentist for a year, but makes a proviso that he may be discharged at any moment, and also that he may be held indefinitely, that is, more than a year if the nature of things demands it; and he must be prepared and reconciled to go wheresoever the government may order, even to the north pole, should the occasion demand. And this brings me to a mention of the varying conditions under which the army dentist may be called upon to perform his duties. Under peace conditions, they may be much the same as in a private practice, housed in fairly comfortable and convenient quarters and supplied perhaps with a fairly adequate outfit to work with; but the usual outfit of a dentist, with its multitude of special and convenient appliances, would hardly be consistent with campaigning, and our army dentist will find himself often obliged to do without a thousand and one little things that he would deem quite impossible in private practice. He may find himself often obliged to resort to very primitive methods, or to make or improvise the instruments he must have to work with.

No one knows for very far into the future, what an army is going to do. An army is maintained for emergencies and no one can tell what emergencies may arise, or how long untoward conditions may prevail. A dentist in the late Civil War in this country would have been, in most cases, very much on the move. If he filled teeth at all, it would have been in a sort of catch-as-catch-can way, with an open field or a bedraggled tent for an operating room, and perchance by the light of the ruddy camp fire. How would you like to be the dentist filling teeth on the firing line? You'd have to have your nerve with you. This is running to extremes, but one who has had army experience of the active sort, as I have, can see where the army dentist might have his troubles that might baffle the best, and especially the younger graduates who have had little experience.

And last but not least he may find a prejudice confronting him very difficult to overcome. In all our efforts in the years past to get members of our profession into army service we have been met with a strong prejudice which, however, has been greatly modified; and yet there is an aristocracy in the army among officers. The officers' mess and the officers' club is pretty hard to get into if perchance one is in disfavor from any cause among them, and an isolated existence, being neither of the officers nor of the rank and file, would be intolerable. Much would depend upon the personality, and thus I say the dentist in the army should be of first-class material, capable in every way of maintaining the dignity of his calling.

If the bill in Congress goes through and becomes a law it will be an important epoch in dentistry, and while few of us will benefit in any direct or personal way, it should be of the deepest interest and concern to every man of us, and no stone should be left unturned severally and concertedly to bring about the establishment of a dental corps in the army on a footing that shall redound to the credit of our profession. For the present everything centers on the selection of the board, anticipating the action of Congress, as we are, but let us persist in a vigorous effort to influence a selection of three regularly qualified graduates of dentistry. Let physicians attach themselves to the regular medical corps.

SALIVARY CALCULUS.*

By D. M. CATTELL, D. D. S., Chicago, Ill.

The deposit of stony matter, called by the Greeks "odontolithus," and all Latin speaking nations "calculus dentalis," and by the English tongue "salivary calculus," is known as a secretion of the salivary glands and thrown out through the ducts leading from the glands into the mouth, along with, or as a constituent of the saliva.

This calculus is supposed to be the waste or worn out material from the osseous system. As it enters the mouth in solution the greater part of it reënters the stomach again along with the saliva, its solvent. On entering the mouth, the saliva, loaded with calculus, comes into contact with elements that are detrimental to it as a solvent of this lime salts.

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*Read before the Odontographic Society.

These foreign elements found in the mouth are principally alkaline substances, as ammonia, and other products of fermentation; also air and water, rendering the saliva, with its changed constituents, incapable of holding longer in suspension its stony companion, which is then thrown down as a sediment and lodges upon the crown surfaces of the teeth, which are covered with a thick and sticky secretion excreted from the mucous glands, which are numerous in the membrane of the same name lining the oral cavity.

Salivary calculus is more abundantly deposited while the individual is sleeping, the lips and tongue being then at rest. On rising, if one will but run his tongue over the surfaces of the teeth, he will notice a rough, gritty feeling or sensation accompanying the movement. If the freshly deposited lime salts are not removed by the judicious use of the toothbrush and powder, only those surfaces are cleaned during the day that come in rigorous contact with food in the act of mastication. The rest remains about the necks of the teeth and in protected locations, there to harden during the day and gather on its surface small particles of food. The next resting spell of the neighboring muscles finds the ground well prepared for another layer; and so the layers continue until large masses are collected. By the laity this aggregation is called "tartar." The term is borrowed from the fact of its deposit on the teeth being similar in manner to the cream of tartar found deposited on the inside of wine casks.

Paracelsus, the wandering Teutonic student of nature, an empyrical doctor of the sixteenth century, tells us that "tartar" was an invention of old Tartarus, the keeper of the infernal regions. He also considered tartar (secreted by other glands than the salivary) to be the cause of gout, hence his borrowing the thought from the infernal.

Salivary calculus is composed of earthy salts and animal matter; that is, phosphate and carbonate of lime, fibrin and fatty matter, with mucous relations. The relative proportions of these ingredients differ, as does the amount of the collection, with different temperaments, health and various characteristics of individuals, hence the different analyses by chemists.

For example, Berzelius once found 79.0 parts phosphate of lime and magnesia, 13.5 parts salivary mucus and salivine, 7.5 parts animal matter.

While Dwinelle found 60 parts phosphate of lime, 14 parts carbonate of lime, 16 parts animal matter and mucus, 10 parts water, loss, etc.

All persons are subject to the collection of tartar, but the character and quantity differ with the individual.

In the healthy we usually find the hard, dry, black or brown variety, in quantity limited, but sticking to the teeth with great tenacity. As we pass downward in the scale of health, we find the light or yellowish brown, and at times the almost white variety, which is usually soft and easily displaced. As before stated, the individual characteristics or physical habit largely determine the color and consistency. Small amounts of calculus may not affect the general health nor injure the adjacent soft parts, but large collections certainly influence both the health generally and the parts locally.

As the nuclei forms at the necks of the teeth and the aggregations continue, the deposit is mostly on the under, or rather, the gingival side, which is always rough and tends to irritate the gums, which in time becomes so encroached upon that inflammation is established, suppuration results and the tissues slough away; the parts, meanwhile, being bathed in pus, so that with every mouthful of food swallowed, portions of this broken down tissue enter the stomach, there to despoil the otherwise natural conditions.

Of the deleterious influences of this accumulating deposit on the mucous membrane as well as the peridental, resulting in gingivitis and pericementitis, or other lesions, I will leave for the pathologists to propound.

Of the physical aspect of this stony, this aggregating mass of decaying animal and vegetable matter, thrifty home of microbes, this filthy, rotten, stinking, homogeneous mass, this inheritance of the veritable keeper of the most damnable, of this dirty mass so often presented to us by patients coming from all classes, let me present you a picture.

Just think of the filthy, diseased, poisonous fluids and semisolids being commingled with every particle of food swallowed. It is strange that the victims are not too much disgusted to eat. Though not fastidious, I have often been unable to take nourishment for hours after working in one of these open sepulchres.

Civilized peoples remove the aggregating accumulations of waste and foreign debris from other portions of the body, but often neglect so important a part as the mouth. They blow their noses, they swab their ears, they wipe their eyes, they manicure their fingers and chirop their toes, they shampoo their scalp, they bathe their skin, they wash and perfume their armpits, they soak and soap their feet, they wipe the anus after each potting, yet they let the mouth go uncleansed.

"Not long ago there was a good story told of an honest Christian man, having a worthy missionary enterprise at heart, who called on a prominent business man, soliciting his financial assistance in furthering said enterprise, which was recognized as *worthy* but aid *refused*. Why? His explanation to a friend tells it. 'What man can accomplish any good who has a mouth in such a filthy condition, sending forth pollution at every breath?' For the good work he had sympathy, but for the dirty-mouthed medium he had disgust."

Gentlemen, we should clean our patients' teeth when they first present themselves to us—for their sakes and for our own. Can we make them appreciate the nice work we propose to do for them while tartar, unsightly, filthy tartar, covers much or any of the tooth surfaces? Clean them up and let them know they have good "ivories," sightly, worth money and time to repair and keep in order for present comfort and future good. Give them a chance to respect their own mouths. Teach them how to keep their teeth clean. As an example let us show them our own. If we are honest, manly dentists, they will be clean and our mouths healthy. We cannot preach one precept to our patients and follow another, successfully. Let's mean what we say, and say what we mean, boldly, effectually, and we will have our reward in the respect due us. "We have seen patients so indifferent in regard to the condition of their mouths that ordinary advice failed to induce them to do better. We have to talk coarsely, almost harshly, to such, to get them to give their mouths the necessary attention. When they express surprise at the rapid decay of their teeth or the diseased condition of their gums, we should tell them that if they treated their *hands* as they were treating their *mouths*, their finger nails would rot off." (Watt.)

"If a drop of fresh cream adheres to the lips of a young lady, she will not think of giving or taking a lover's kiss till it has been carefully removed by washing. But she will besmear her mouth internally with bacon and gravy, green peas and griddle cakes, molasses and jellies, soups and salads, and leave their debris to ferment and putrify, so that the kiss of betrothal on her lips is like painting the outside of a sepulchre, while within it is full of dead men's bones and uncleanness." (Watt.) And her own lips constantly kiss all this uncleanness.

To break up a tendency to the excessive deposit of salivary calculus, on general principles, an improvement of the general health is called for. Salt bacon and the like should be left out of the bill of fare, and fresh vegetables should occupy a prominent position, while fruits of all kinds should be freely eaten, especially apples and kindred acid foods. The malic acid of the apple is a great corrective and probably the apple is the most healthful of all fruits. Vinegar and lemonade should be supplied freely to both the child and the adult. Plenty of fresh air and moderate exercise are always at command and should be insisted upon. Pickles of all kinds, chow-chow, catsup and the like, also many of the mineral acids, as hydrochloric and sulphuric are oftentimes beneficial to correct not only the secretions of the stomach, but the juices of the body generally, of which the saliva is one of the more important, "Tartar," so called, consisting not only of lime salts, but mixed with the aggregating sediment are found many small particles of food and viscid mucous secretions, making the mass an exceedingly nasty and offensive thing to carry around in the mouth. Hence, prophylactic treatment of this abnormal tendency should be indulged in. While the general health conditions are looked after, the *local* cleansing should be strenuously insisted upon. It is universally conceded that both the toothpick and the brush are necessary for the effective cleansing of the teeth.

Many use the brush with something like decent regularity, while, for want of the pick, soft rubber string, a floss silk thread, fragments of beefsteak, fried ham, roast turkey, mutton and company, remain tightly wedged between the teeth, there to ferment and develop corrosive agents, while the plasterer's art is successively portrayed by the bread and potatoes smoothly filling the spaces between and around the necks of the teeth.

If the adage is true that "cleanliness is next to godliness," then it is a *virtue* rather than a *sin* to remove the garbage from between the teeth, left there during the process of eating, owing to imperfect occlusion, articulation, or lack of interproximal contact. And the removal should take place as quickly as possible after its malretention. Therefore, see to it that the toothpick is upon or near the eating table as a part of its armamentarium. The pick has become of recognized importance almost the world over. All public and semi-public eating houses and dining rooms are well supplied with one or more varieties. At the private table, also, they are more or less popular, notwithstanding some of the oversensitive, would-be polite or esthetic beings try to disparage their use on the ground of—well, fastidiousness?

However, these false sentiments usually go along with and are found attached to those that are not fond of bathing, perhaps for fear some one might, perchance, see their nakedness; those that will wear a dirty, ragged shirt, ashamed to put such a thing in the "wash," but, if possible to obtain them, they will wear diamonds galore, conspicuously, while on a shopping tour.

Wherefore, then, neglect not this important duty either among ourselves or in advising and assisting our patients. Neglect means too often loss—whence, then, the one who wrote "their throat is an open sepulchre," will have told a truth too true.

THE IDEAS OF A KENTUCKY BELLE ON LOVE-MAKING.

"I hold that love-making is an art. There is no such thing as love at first sight. We may admire each other in the beginning, but immediate affection is out of the question. First impressions, no matter how favorable, must be strengthened by artful cultivation. Then love comes, and if the man who sues makes no mistake, he is sure to win, no matter what his condition may be. Of course he must talk well, dress respectably, and above all, wear clean linen and keep his face free from dirt. If he does all this and sues judiciously, no arrow of misfortune can keep the victor's wreath from off his crown.

I might add that one of the requisites in personal appearance is *clean teeth*.

A man may have a nose like a pumpkin, a mouth like a mammoth cave, or eyes like a jaybird, a hand like a ham, or a foot as big as a canoe, and he can win; but if his *teeth* are not what a gentleman's teeth ought to be, he will rue the day he gave his heart to a well bred woman.

He may be tall or short, stout or lean, with a voice like a foghorn and a carriage as ungraceful as the amble of a camel, and he may yet win any woman in the world if he studies her with care and keeps his teeth clean."

A USEFUL ARTICLE FOR YOU. (TOOTHBRUSH.)

" This useful pledge of fond esteem
Perhaps, dear love, from me thou'lt prize;
It tells of cleanliness, a theme
I fear thou'rt given to despise.

Though silent, this mute thing will speak
My sentiments. If not still louder
My words upon thy ears shall break
When simply I suggest—tooth powder.

Just rinse thy mouth when thou dost rise,
And use this votive gift of mine—
Some day or other, in my eyes,
Thou then may be a valentine."

PROCEEDINGS OF SOCIETIES.

The Odontographic Society of Chicago.

Annual meeting was held in the Stewart Building, Feb. 19. 1900, with the President, Dr. Thomas L. Gilmer, in the chair.

Dr. B. J. Cigrand read a paper entitled "A Study of Dental Deformities in Fine Art and Sculpture," which was illustrated by stereopticon views. (See Dental Review for June and July.)

DISCUSSION.

Dr. C. S. Case: I have been very much interested in the paper that has been presented to us this evening, largely because of the fact that I am more or less interested in all subjects that pertain to art, and I presume nearly all dentists share with me this feeling because of the constant demands that are made upon us along the line of esthetics. The methods we employ, and the accomplishments which we hope to attain, all tend to cultivate in art, whether we will or no, a somewhat exalted appreciation and love of art; yet I am rather inclined to think that the paper perhaps would be more appropriately placed if it had been presented to a society of artists rather than dentists. in that it deals almost exclusively with artists and art work, and it is a very just criticism upon the errors that they often make along the very limited field of their work upon which the doctor is eminently fitted to be a judge.

Several weeks ago, when the doctor spoke to me about this paper, I hoped and expected that he would go further than he has done; that he was going to consider this a preliminary or introductory paper, and that other papers would follow which would deal particularly with methods of teaching esthetics in connection with dentistry. This is a subject upon which much has been written and published in periodicals and text-books, and it is more or less instructive, and yet you are aware, as well as myself, that it is a branch of dentistry upon which a large proportion of dentists feel quite as unhappily as do the poor artists when they attempt to paint pictures of the teeth. This branch of dentistry naturally would deal with the anatomical forms of the teeth and their artistic restoration; the size, the shape, and the color of artificial teeth in their relations to the features and temperament. It would deal with the relative position and attitude of the teeth and their artistic arrangement in relation to the lips and surrounding parts, together with the color of the gums and their artistic contour, and the possibilities of extending the artificial parts so as to restore facial contour. It would tell us how to study the physiogomy from an artistic standpoint; it would teach us how to recognize and classify the various forms of facial imperfections that are due to a loss of the teeth or to a malposition of them, and how we should correct them, following out artistic lines of restoration. But the paper has not mentioned these things, and therefore it would not be proper for us to discuss them this evening.

The doctor deserves a great deal of credit for the masterly way in which he has presented his ideas before this Society. We can hardly appreciate the amount of time and labor and persevering energy, to say nothing of the expense which this display has cost him. The pictures certainly prove all that he claims and that which dentists from all time have recognized with their superior knowledge of the shapes and positions of the teeth whenever they have seen attempts at exposing the teeth in pictures or in sculpture, not always, but frequently. Were we as well skilled in special forms of the hands, the ears and the eyes in their artistic relations to other parts they are joined to by artists, we would find quite as much to criticise in the appearance of these organs which we now pass unnoticed as do the appearance of the teeth pass unobserved to the ordinary observer, because of the fact that the law does not require artists to pass an examination upon their work before they are permitted to practice as do other colleges and other professions. Very few artists avail themselves of the opportunities presented by their own schools of obtaining that knowledge of the anatomical forms which they attempt to portray upon canvas and paper. It may not be commonly known that these art schools teach very advanced anatomy; in fact, human anatomy has been one of the prominent features in the foundation of art knowledge from the beginning of all time—at least, after the law permitted the dissection of the human body, and after it was not considered profane to consider anatomy.

I have taken from my library a text-book entitled "Artistic Anatomy," which is used in the colleges. and as I open the leaves and expose the pictures, you will see that they look very much like the pictures that we find in Gray's Anatomy. So there are opportunities presented by different schools of art for the study of anatomy, not as thoroughly of course as we study it in our colleges, but they use the skeleton, manikin and models, and things of that kind in order to get a knowledge of anatomy so far as they require it. Of course, their knowledge of anatomy is superficial as compared with that of the surgeon or dentist. They study the bones and muscles with a view to determining the physiological action of the muscles in giving the proper contours to the forms of the hands, legs, etc., in certain attitudes. (Here Dr. Case read extracts from a book published in 1478 relative to the acquirement of a knowledge of anatomy as applied to art.)

Considering the general advancement in art schools upon subjects of this kind, I would take issue with Dr. Cigrand in advising artists to attend a course in dentistry with a view to special improvement. I have no doubt but what it would be a good thing. It certainly would do them no harm to take not only a course in dentistry, but in medicine. These courses would have a broadening influence, but their time might be better spent in pursuing the courses that are presented by schools of art.

So far as the advice to dentists taking courses in art is concerned, I think it is very good indeed, and yet there are many other things that perhaps they could do to occupy their time more beneficially, but as an educative influence it would do much good.

DR. EDMUND NOYES was asked to discuss the paper. He said: I believe that I am as totally unfit and incompetent to discuss this paper as any subject that I have ever talked about; at the same time, I appreciate very fully the importance and value of both the paper and the subject. It is very interesting to us to be introduced to this aspect of the human face and to observe in the way that has been brought to our notice the defects of art which come from imperfect study of the anatomical forms in our department. It is very true, as has been suggested, that artists do study anatomy and to some extent physiology very thoroughly; but it appears, from what has been said this evening, that they do not give the minute and accurate attention to the forms of the teeth and their arrangement in the mouth any more than physicians have been in the habit of giving very definite or particular attention to either the anatomy or the physiology of the teeth themselves. Perhaps we ought not to expect anyone else except specialists in this particular department to bestow this careful attention, and yet it would seem as if we might expect artists and physicians to give more definite study to those matters which are of equal importance as many other matters which they pay close attention to. The importance of this quick, keen and accurate perception of facial forms, which the paper has brought to our attention, many of us appreciate most keenly by the lack of it in sufficient degree to satisfy our ideals and our desires and efforts when we go to work upon faces. It requires a creative imagination and a good deal more study of art forms than most of us have ever been able to give to look at a deformed face and mouth and create in our minds a distinct and accurate image of what that mouth ought to be if it were normal, or if the deformity were remedied to the greatest extent which our resources will permit; and neither we nor any other artists can hope for any very pronounced success in our efforts unless the imagination is able to create that definite picture of what we wish to accomplish. Most of us have to put our artificial dentures into the mouths of patients, see how they look, and change them to another form, and then see how they look, instead of having a definite image in mind which we wish to work to and produce.

It is along these lines that the training which Dr. Cigrand suggested in the art schools would be of the greatest use to us with reference to the production of artificial teeth for dentures especially, but also with reference to all of our work in orthodontia. I would not say that it is the most important line of study with reference to orthodontia, but it would have its value I think. It would have its value in a general training of the perceptive faculties with reference to beautiful forms, which is of the greatest importance, and it would also have its value in impressing upon the imagination typical features which could remain there as proximate standards which we could use afterwards.

Dr. Truman W. Brophy was invited to participate in the discussion. He said: I feel a good deal as Dr. Noyes does in regard to this matter, as I do not think I was ever asked before to discuss a subject like this, or one that deals with the question of art. While I am not able to discuss this paper from the standpoint of an artist and the excellent exhibit this evening, I want to say that any man who devotes time, energy. skill and perseverance to produce a paper like this and to make an exhibition like this is entitled to all the credit that the Society and our profession is able to bestow upon him. (Applause.) This means a great deal, and those who have not spent the time and energy in writing a paper, covering the data and statistics and all of the material that has been grouped together in this paper have not the slightest conception of what the doctor has been doing and the years of time he has spent in getting this material together and studying up the subject. We must consider the impression that this paper will make on the profession. When we hear a paper like this we must think of what it is doing for our profession. This paper will bring this Society more conspicuously before the people generally and those who have studied art, although they may not be artists themselves. It will do more toward bringing the profession generally before the world in an artistic way and impress upon those who may have an opportunity to read it that we are engaged in something more than the people generally consider as the field of dentistry, than anything I know of. It is a hard thing for the people generally to comprehend what dentistry really is. It is a hard matter for the medical profession to grasp the situation, to comprehend what our profession really is, and what we are doing and to make a distinction between dentistry of to-day and dentistry fifty years ago. I really believe that the majority of the men engaged in the general practice of medicine know comparatively nothing of what modern dentistry is. Right here is a field that is large enough to occupy the very best talent that we have. With all this enormous expenditure of time and effort in the preparation of this paper, Dr. Cigrand has just begun, and yet this work can be carried on, broadened and embellished all over the world, so that artists in their work in preserving the contour of the face will consider the importance of dentistry. It places dentistry, in my judgment. before the world from a different standpoint altogether. It will make the impression upon people that there are in dentistry the elements essential for the preservation of youth and beauty, facial contour, and character. Deprive a man or woman of his or her teeth and you take away from him or her those essentials that make up strength of character. The face is disfigured; it is deformed by the loss of the teeth, and even when the teeth are present, if allowed to stand in irregular positions, with V-shaped arch forward, the teeth protruding out of the mouth with lips closed, such a person is deformed. He needs to have the attention of a skilled dentist, and artists in painting such a picture of such a person, as he really is, would produce a face that is unsightly. This kind of deformity in the hands of experts in our special line of work may be perfectly overcome or corrected, and the features restored to the condition that we regard as normal. I suppose that this is one of the ideas that Dr. Cigrand had in mind in the preparation of his paper, namely, to point out to artists the necessity of painting the teeth in conformity with their natural forms, or reproducing the teeth in an anatomical way correctly, and to show to our profession also the importance of bringing these features into a form suitable for the artist to work upon. This we can do, and it is one of the greatest functions of dentistry.

I sometimes try to make out in my own mind what we are trying to do, and what we draw from in making up modern dentists. There is not an art or science, there is nothing within the whole domain of science that we do not extract something from to use in our profession. The best dentist must know chemistry, metallurgy particularly, he must know art, photography, and all those things if he is a modern dentist, considering the manner in which dentists are educated in this time.

These remarks are perhaps a little foreign to the paper and the work that has been shown this evening; but we are developing more rapidly than any of us know; we are expanding more rapidly than any of us know and realize, and the time will come when we will have to be able to do almost anything. We must be conversant with all the sciences and arts and the manufactories, and from all of these extract such knowledge as will make us stronger and better, the whole object of which is to serve our patients better.

Dr. George B. Perry: I am not particularly informed on this subject which has been presented to-night, because it opens up a new field of thought to me entirely. It is somewhat on a line of work that I have been doing and have been interested in, and yet it is entirely different. I can appreciate the amount of work that has been done by Dr. Cigrand in preparing this paper. I fully realize that he has done so at the expenditure of much time, research, and expense. I wish I were more capable of handling this subject as it ought to be handled in a discussion. However, one or two points have occurred to me which I would like to speak of. I have noticed myself in a casual way, although I have not attempted to make any deductions in writing, the caricatures that Dr. Cigrand spoke of as being observed in the work of artists. Caricaturing is one of the principal criticisms of many pictures that we see, in that the mouth is either disfigured by the malposition of the teeth, or there is an anatomical disfiguration of them. Harmony of features is very essential in an effort to produce a portrait which is acceptable to the on-looker. It is necessary for the teeth to be in proper position, as much so as the eyes, the nose, or the ears. The different emotions, as represented in different pictures, have a strong bearing upon the general aspect. Happiness, sorrow, fright, chagrin, discomfort, and other emotional conditions are represented more than people realize by the contour of the mouth and of the teeth.

Speaking of the retouching of photographs, this was brought to my mind very forcibly, in his description of the up-to-date photograph, by a photograph which I have of a gentleman in San Francisco—Dr. Carlton, whom many of you know. He had been ill for several weeks, and had just returned to his office.

An amateur photographer happened to be in his office one day and said to him, "Doctor, I wish you would sit in a chair so that I can take a snap-shot of you." Dr. Carlton replied that he was in no condition to have his picture taken, and said that he felt miserable. The photographer said, "Let me see what sort of light I can get on your face," and he took one of the best pictures I have ever seen, and any one who is fortunate enough to see this picture will bear me out in that statement. It is very natural and lifelike.

The essayist has presented two good papers to the profession of Chicago within the last three months, and he is to be highly complimented on the work he has shown in those papers.

Dr. F. N. Brown: I have enjoyed the paper of Dr. Cigrand very much, and while I am not a critic, I am a better critic to-night than I ever was before. The paper has done that much for me, at least. The first thing I wish to say is that I appreciate very highly the effort that Dr. Cigrand has put forth to give us this excellent paper. I understand that he has been working on it for six years; I have known of it for some time, and I believe he has expended something like three hundred dollars in getting up these illustrations. I am glad to know that we have a member of the Society who is willing to go into his pocket, spend his money and time in order to get up such a paper.

In the first place, the title of the paper being fine art, the doctor referred to Ruskin and of his inability to dissect and to delineate, and for that reason he denied himself the privilege of producing portrait paintings. Now, it struck me at once that if Ruskin was honest enough to admit that he could not paint or produce a correct picture, on account of his inability to dissect, we as dentists ought to be careful how we delve in the particular line of our profession unless we are capable of producing the best results. We have no right to take a mouth and correct the position of the teeth and produce a worse case than that which we found, and this is easy to do. We have no right to take a mouth capable of being restored with bridges and crowns, and destroy the abutments, when a better workman is able to put the mouth in proper shape. As a profession, not all of us are honest. That is the first point that struck me favorably, and I have obtained some information from the paper.

In the next place, if we go to the art gallery or at the Columbian Museum we will see a painting or paintings that have required years to produce, and the next day, when a patient comes to us calling for the highest class of work, as, for instance, a continuous case, one that requires as much time as any artificial denture, we are willing to promise to finish the job in two or three days, or turn it over to a man on the outside perhaps who never saw the patient, who is willing to paint the picture by hearsay. On the other hand, we find, as the doctor stated in his paper, this likeness (referring to portrait exhibited by Dr. Cigrand) has been developed after twenty-two sittings. Now, is it not a fact that we as dentists and as would-be artists in our profession do not give enough time in this direction? If a painter will take several years to paint a picture that is of great credit to him, ought we not to take several weeks to construct a piece of work that will redound to our credit? We make a mistake here frequently.

Another point in the paper that impressed me forcibly was that sculpture and modeling would be desirable adjuncts to our dental curriculum. I believe there is coming a time when every dental college in the country will not only have to have modeling and carving and sculpturing as a part of its curriculum, but photography. Why? Because there is more regulating necessary to be done in the city of Chicago, if the people were educated up to it, than we have specialists in America to attend to it. And these men must know the human face definitely to get the best results, and it is only by having a knowledge of modeling and carving that good results can be obtained. These things are a part of the coming education of the dentist.

Lastly, I believe the time is ripe in Chicago for an American dental art society. There are men here who are so wedded to their profession that they will spend any amount of time to see it improve, to see it grow, and I believe if there was a dental art society, especially in Chicago to-day, that we could draw Jackson of New York, Angle of St. Louis, Goddard of California, and with our own Case as president it would be a success.

Dr. Cigrand (closing the discussion): There were many thoughts brought out in the discussion, but I wish to speak briefly on a few suggestions. Some dentists entertain the idea that if a man is good in mechanics he is likewise good in art. Now, those who will look up this matter will find that this is a mistaken idea. The teachers and superintendents of manual training schools in this city with whom I have conversed have given it to me as a pointer, that the boys who are good in the manual training department of the school are not always good in fine art, or in lead-pencil, or brush work in the upper grades. The boys who are good in the manual training department are not necessarily good in the fine art department; but those that are making excellent headway in the fine art department are *always* good in the manual training department. So it shows that there is a difference between mechanics and fine art; that while they are kindred and related and interwoven in a mystifying way, that no one can well define, yet at the bench and at the desk there is a difference. The men who are clever with tools and are able to make and carve all manner of designs and objects are not good at all at sketching Why? Because God Almighty did not endow them with a faculty for this particular work, or because they have not been educated along this line. There is nothing that sharpens the judgment so much as drawing; there is nothing I know of that gives a keener insight into objects and the nature of their imperfections, their ups and downs, their smooth or irregular surfaces, than drawing. The character of the object makes a profound impression upon the brain, in that you must educate the judgment to see and follow the line and carve the outline on paper of the image that you have before you. This calls for your undivided attention and stamps the model indelibly upon the brain. Which is the safest and soundest way of teaching a child geography? Map drawing. What is a still safer method? Clay modeling; but map drawing is the keynote of teaching geography, and as it is the keynote of teaching the child geography, it is likewise the keynote of teaching any objective thing. The dental college that incorporates in its curriculum a course in drawing, in art, in lead pencil work, pen and ink and brush work, is doing more for freshmen and junior year students than we have the least idea of. Why is it that the men who have taken up architecture and are good at drawing, progress in orthodontia, prosthodontia and operative dentistry? Simply because they have digital training. There is no fear about their advancement in materia medica and therapeutics and the kindred sciences. To succeed in dentistry one must be a mechanic, an artist, or he is nothing; the other studies are important and correlated but must be superstructural and not basic. With his knowledge of therapeutics, of physiology and anatomy, he must also have a thorough knowledge of art and mechanics, and I used the term art mechanic in its broadest sense. And so I want to emphasize a point in the paper which was only touched upon in the discussion by Dr. Brophy, though he fully appreciated its purpose. The particular idea in my paper was to make a deeper impression upon the members of the Odontographic Society with reference to the importance of this class of dental observations and the service we could render artists. I wrote the mere initial of this paper first for the Society in 1894, but I soon found that I could not treat the subject in a comprehensive manner, and so I had it taken off the program, and studied the subject for another six years, and I feel to-night that I wished I had left it for five years more before presenting it; still some of my friends prevailed on me to give it, and the high praise you have given me must be taken as sincere, though I feel I have but done my duty. The field is so great, as Dr. Brophy has said, that I have just barely touched the borders of it. If there are crudities in the paper you must overlook them. The main purpose of the paper was to make dentists take a keener interest in art and to show artists that *we* as dentists have something in which they might be interested.

Just a word or two more and I have done. With regard to sculpture I have particularly prepared a paper on that subject, but I would not venture to give it at this time, because I am not ready to do so. This is slow work, because every step I take I must necessarily prosecute a studium of sculpture in its various phases and get the advice of artists and sculptors, then feel my way. Some day I may be able to give a paper on this feature of the subject.

Dr. Case spoke of artists who took up the study of anatomy, physiology and dissections early in the Fifteenth Century. That is true. At that time artists did pursue a course in these branches, but there was a law passed in France in 1735, which prohibited artists from dissecting, which prohibited barbers and priests from extracting teeth, or any class of men from working on the human economy. Dentists, physicians and surgeons alone were privileged to serve in this capacity. This bill, shortly after, was passed in England, then in Germany, and Louis XIV of France in 1741, I believe, put upon the statute books of France the first law that made dentistry a profession. In 1741, in the parliaments of France, there was a law that made it a penal offense for any one to extract teeth except dentists, unless there were no dentists in the town; if there were dentists in the town no one dared to extract a tooth except a dentist in any town in France

With reference to photography and other kindred things, I should like very much to speak of them, but I have not sufficient time. I simply desire to express my appreciation for the generous encouragement rendered by the several speakers and to thank the members of the Society for their respect and marked attention in listening to my paper.

Under the head of "Incidents of Office Practice," Dr. Truman W. Brophy exhibited a device for the correction of a deformity resulting from the removal of the left half of the inferior maxillary bone, including the body and ramus of the bone.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Regular meeting was held in the Stewart Building, March, 1900, with the President, Dr. Thomas L. Gilmer, in the chair.

Dr. R. B. **TULLER** read a paper entitled, "The Dentist in the Army, From the Standpoint of an Old Soldier." See page 864.

Dr. H. H. **WILSON** opened the discussion. He said: In opening this discussion, I can honestly pay the usual compliments to the paper and its author. I find nothing to criticise and do not differ materially with anything contained in the paper. In fact, I hold a contrary opinion on but one point—that "the dentists will not find a welcome to the army officers' mess." And this opinion I should probably not have formed but for my experience this winter as a member of the committee to advance legislation to provide dental surgeons for service in the army and navy. Judging from personal experience, there is a unanimous desire on the part of the army officers, surgeons included, for the addition of a dental corps to the medical department of the army. Of about five thousand communications which the committee received from all parts of the country, including our newly acquired possessions, all favoring the passage of the Otey bill, fully one-half were from army officers. Most of these and all with whom I talked criticised the bill in one particular only, and that was the fact that it did not carry rank with it. The objection to giving dental surgeons rank does not come from army officers nearly so much as from members of the medical profession not connected with the army. A short time ago an article appeared in a New York medical journal very severely criticising the surgeon-general for making the statement that one dentist at the head of the army dental corps should be given the rank of major.

In the February number of the *Western Dental Journal* there appeared an editorial severely censuring the surgeon-general, for "killing" the Otey bill. This was very unjust; first, because the bill was not "killed," and, secondly, because the Secretary of War sent to the Committee on Military Affairs of the House the written endorsement of the surgeon-general, resulting in that Committee making a very strong report, closing with these words: "Your Committee, believing that the enactment of this bill into a law will increase the efficiency of the army and add to the comfort of and retard disease among its rank and file, unanimously recommend its speedy passage." It seems impossible that a stronger report could have been made.

The essayist thinks that the services of dentists in the army will be limited to the care of the teeth, and in this connection I wish to quote from an article in the February number of the *Dental Brief*. It says: "In a recent issue of the *German Dental Weekly* there is an article by Assistant Professor Port, of Munich, Physician-in-Chief to the Bavarian Army Reserves, on 'Dentistry in the Battlefield.' Dr. Port gives some very interesting statistics bearing on the subject from the 'Sanitary Official Reports over the Franco-German War of 1870–71.' The total number of wounded was 116,821. Of these the number wounded in the jaws was no less than 1,154, or nearly 1 per cent. Injuries to the upper jaw alone were 731, to the lower jaw alone 365, and to both jaws 58. The number of those who were cured was 1,053, while 101 died of their wounds. All these cases received suitable medical treatment; but, so far as concerns the fitness of the jaws for the performance of their normal functions, the results were, in most cases, very satisfactory." For it is, of course, just in such cases as those of fractures of the jaw that surgery needs the helping hand of dental technique. Dr. Port quotes Bernhard von Langenbeck, who, as the result of his exceptionally great experience of surgery in war, says: "I should not like to again accompany an army in a campaign unless I had beforehand assured myself of having the assistance of technical specialists for cases of injury to the jaws, and so forth. Every hospital practitioner of the present day has by his side a dentist, to whom he entrusts the dressing of fractures of the jaw, the prosthetic restoration after resections, etc."

Upon this phase of the subject, at least, I hope our esteemed President will consent to speak to us this evening. The same article from which I have just quoted tells us that the Bavarian army has a well-organized dental corps attached to it.

Dr. B. M. Ford: I have worked three years to secure dental services for the soldiers.

Dr. Gilmer was one of the first men with whom I talked in regard to securing such legislation, and he said that he thought it could not be done, as such a bill had been defeated several years ago; and then I talked with others, and they were of the same opinion as Dr. Gilmer, but I thought it could be done, and at my own expense had a bill drawn providing for a dental corps for the army, after conversing with Lieut.-Col. Hartsuff, medical director for the Department of the Missouri, also with Lieut.-Col. Baird and Lieut.-Col. McClure, of the paymaster's department, all of whom endorsed the idea.

I also corresponded with the heads of departments of the army and secured answers from all except two.

Nearly all favored such a move, and one officer said he would make an official report to headquarters at Washington but would not give an opinion otherwise.

I forwarded the bill to Senator Mason asking his opinion of it and the best method to pursue to secure its passage.

He, misunderstanding my letter, introduced it without any change in it.

Three weeks from that time Mr. Otey introduced a bill in the House, and this House bill was an exact copy of the Senate bill with the exception of the rank; the Senate bill providing the same rank as held by members of the medical corps, the Otey bill providing brigade dentists with rank of major, and regimental dentists with rank of captain.

The latter bill would have carried a much heavier pay roll than the former.

I asked friends to ask Mr. Hull's coöperation in securing legislation upon this subject, and he introduced a clause into his army bill providing a dentist for each regiment with the rank and pay of a second lieutenant of infantry, and also a clause providing for veterinary surgeons with rank and pay of a first ieutenant mounted.

Mr. Hull's provision was defeated, and the war business becoming very pressing, I believe neither of the other bills was ever gotten up.

I was working for the soldiers at Ft. Sheridan at that time and I worked for them two years, visiting the post twice each week.

I found that a post like Ft. Sheridan would furnish enough work (if it was all done) to keep a dentist busy eight hours per day.

The average number of recruits who enlisted in the eight companies of the Fourth United States Infantry, then stationed at Ft. Sheridan, was thirteen per month.

This estimate was furnished me by an officer of the regiment.

I have seen recruits come in (particular attention being called to those playing wind instruments) whose teeth were in such bad condition that I formed a support for the lip by molding gutta-percha that they might play their instruments satisfactorily.

The cost of the dental work for these men, charging a very moderate fee, would range from $50 to $100 each, and it would be very hard for them to pay for such services out of a salary of $13 per month.

In the case of some of the men stationed in the west, they were obliged to spend from $10 to $20 to reach the nearest dentist, and I know of one case where a sergeant was sent 200 miles with an escort to be relieved of toothache, and another case of a post quartermaster sergeant who was sent eighty miles by stage to obtain relief.

Very few of the surgeons treat or extract teeth, but they refer the cases to the hospital steward or his assistants.

I know this was true at Ft. Sheridan and I understand that it is true at other posts.

The forceps are not well chosen for this work, and with a poor assortment of instruments and a lack of knowledge upon the part of the extractor, the teeth were frequently so crushed that I found it difficult in many instances to extract the remnants when the patient finally reached me upon the days I was at the post.

Another example of the need of dentists in the army may be illustrated by a case which came under my observation. Private R———, " A " Battery, Second Artillery was thrown from a caisson and fell face downwards fracturing his nose and both centrals and exposing the pulps in both teeth.

The patient was taken to the hospital for treatment and the man gave me the following history of the case: The Post Surgeon was opposed to dentists in the army and refused the man permission to go to or call a dentist to treat his teeth. He suffered intensely about four weeks and obtained relief only by the use of opiates.

At last he said "—— I will go," and walked out of the hospital and came to my office and in about ten minutes the pulps were extracted and the pain had disappeared.

I have written a large number of people who have more or less influence with Congressmen asking them to use their influence and urge the passage of a bill to provide dental services for the soldiers. I merely asked that they favor the bill to provide such services and did not ask them to endorse me for any position in such a corps, but I will say frankly to you that I am a candidate for the same position for which Dr. Wilson is an applicant. I have worked hard for the passage of the bill first and have received a great amount of encouragement, and I think I can safely say that I have secured the promise of about twenty votes in its favor.

Personally I am very much in favor of its passage and would like to see such a measure become a law at an early date, as I know the need perhaps even better than the most of you who are here this evening. I have received letters from the Philippines and the officers say that the need of dentists is very great over there.

A graduate of a Chicago dental school enlisted as a private in the Fourth United States Infantry just before their departure for Manila, hoping to be transferred to the hospital corps after reaching there. He had only a few hand instruments to use, but he might be of considerable service to the men if the officers gave him a chance. If the officers take kindly to him they will give him every facility possible for carrying on his work, but should his Colonel be opposed to it he will not be allowed to practice at all, as they were enlisting men for active service and not as dentists.

I think the present bill before Congress is misunderstood by a large number of people, mostly because of a lack of knowledge of military affairs, but I feel that every dentist ought to work hard for its passage whether he feels any interest in it or not.

Dr. **Tuller** (closing the discussion): There is very little for me to add in my closing remarks. There is one thought, however, that occurs to me in regard to the position of the dentist in the army, and that is, that a definite line should be drawn as to the duties of the dentist with reference to all operations on the jaws, or anything in the nature of a surgical operation. Traumatic conditions of the jaws would necessarily come under the surgeon's care first, and then if he chooses to transfer the matter of treatment to the dentist it would be all right. I do not think the right the dentist would have in the army under this or any other bill would give him a sort of dual capacity as both dentist and surgeon. Of course, this matter could be arranged in some way to the satisfaction of the dentist and surgeon. I am satisfied that the Surgeon-General will settle this matter to the satisfaction of the surgeons, whether to ours or not. In my mind, the dentist in the army should take care of cases of broken jaws, dislocations and various other conditions, among them the treatment of alveolar abscesses. All such cases come properly within the domain of the dentist more than in that of the general surgeon, and whether such cases would be referred to him or not, we do not at present know. I can readily see where there would be confusion of authority as to the duties of the surgeon and the dentist unless there is a line drawn somewhere specifying what the dentist has to do.

The Odontographic Society of Chicago.

The regular meeting was held in Kindergarten Hall, May 21, 1900, with the President, Dr. Thomas L. Gilmer, in the chair.

Dr. **Robert Good** showed a case of pyorrhea alveolaris. He said: Dr. Skinner sent this patient to me, and when I first saw him there was a discharge of pus from every tooth in the mouth. The upper biscupids were loose, also two of the lower. I went to the apex of the roots of all the upper bicuspids and the two lower ones, thoroughly removing all of the pyorrheal deposit and pus. I removed the deposit from apex of molar roots also. The patient is a railroad man, and as he happened to be in the city, I thought I would bring him here to show you the condition of his mouth. A little pyorrhea still remains on one or two of the teeth. He is in a very good condition at the present time when we consider the bad state in which his mouth was at the time I began the treatment. It is about three months since I first saw him.

Dr. Pruyn: How many hours' time did you devote to this case?

Dr. Good: I have probably devoted fifteen hours.

Dr. Pruyn: What did you do the first thing?

Dr. Good: The first thing I did was to try and get rid of the deposits on the teeth.

Dr. Pruyn: How much did you do the first time?

Dr. Good: That is very hard to say, but I cleaned one tooth carefully before commencing to clean another. In this way I cleaned all of his teeth. I put the teeth at rest just as a surgeon would put a broken bone or sprain at rest.

Dr. Pruyn: What appliance did you use in this case?

Dr. Good: I used silk ligatures to keep the teeth from moving.

Dr. Pruyn: Is that your usual method?

Dr. Good: Yes, sir. Sometimes I use bands. In this case I happened to use ligatures, and did so with success.

Dr. Pruyn: In most cases you use silk ligatures. What kind of silk?

Dr. Good. I use No. B. sewing silk.

Dr. Haskins: How long do you expect the ligatures to stay in place?

Dr. Good: These ligatures will remain in place about a month, sometimes for six weeks. I have had them stay on for three months.

Dr. George B. Perry: You change the ligature occasionally?

Dr. Good: I would not unless there was some good reason for so doing.

Dr. Perry: Would there not be a deposit in and about the ligatures?

Dr. Good: Sometimes; but you can usually keep them clean. If I thought it was a good plan to change the ligatures I would do so. After I once apply the ligatures I do not like to disturb them unless I am pretty sure that the teeth will take care of themselves.

Dr. Gilmer: Will you kindly detail your method of treatment from the beginning to the end in this case?

Dr. Good: The treatment for a case like this is the removal of the deposits by instrumentation entirely. I do not depend upon any medicine to dissolve the deposits.

Dr. Gilmer: Do you use any medicaments?

Dr. Good: Yes. Sometimes I use lactic acid in assisting the removal of the deposits.

Dr. Gilmer: What strength?

Dr. Good: I used the full strength in this case. Sometimes I use chromic acid if I want to stir things up a little more than usual.

Dr. Gilmer: That is, after ligating the teeth?

Dr. Good: Yes, sir.

Dr. Perry: Do you find it necessary to repeat the treatment of lactic or chromic acid in ordinary cases?

Dr. Good: Sometimes I use only one treatment, as I find that is sufficient. Once in a while I have a case where I think it is necessary to use it two or three times.

Dr. Perry: Suppose you have a bad case and the teeth are loose, how would you proceed then?

Dr. Good: If I made an application of lactic acid, I would not make another application until ten days or two weeks. It would depend largely upon the appearance and condition of the gum.

Dr. Gilmer: Will you kindly state why you use lactic acid?

Dr. Good: Where we have a pocket filled with pus by the side of a tooth there must be a diseased condition, and the application of lactic acid breaks that up; it creates a new condition; it starts fresh granulations, and that is what I use lactic acid for.

Dr. Gilmer: You do not use it simply because it is acid?

Dr. Good: No, sir.

Dr. Haskins: You use it for its cauterizing effect?

Dr. Good: Yes. If lactic acid does not seem to be severe enough, then I use chromic acid. Sulphuric acid makes the teeth sensitive, so I do not use it. Lactic acid is not a strong coagulant.

Dr. Perry: Have you ever tried trichloracetic acid, and do you think it is as good as lactic acid?

Dr. Good: Yes, it is. Trichloracetic acid is a great favorite of Dr. Harlan's.

Dr. Fred. B. Noyes: Were there considerable masses of deposits in this case?

Dr. Good: Yes, there were.

Dr. Pruyn: What was the color of the deposit in this case?

Dr. Good: A sort of brownish-gray.

Dr. Pruyn: Very hard?

Dr. Good: The deposits were hard to remove.

Dr. Pruyn: They came off in small pieces?

Dr. Good: Yes. If there is a deposit on the roots, you have to go over each root thoroughly; the deposit will not flake off.

Dr. Perry: In the deposits you removed from the upper teeth, were they entirely on the buccal surfaces, or some of them on the palatal surfaces?

Dr. Good: The deposits in this case seem to be all around the teeth. The lingual roots of the molars were affected more than the buccal roots.

A Member: Do you depend upon having the teeth perfectly clean?

Dr. Good: Yes, sir. I think it is necessary to remove the deposits as thoroughly as a surgeon would remove necrosed bone in any case where it was found.

Dr. Gilmer: Would you remove anything beyond the deposit of the bone about the socket?

Dr. Good: I smooth down the rough edges of bone. I think lactic acid will dissolve necrosed bone or the rough edges in many cases. I believe it is better to have everything as smooth as possible.

Dr. Perry: How do you apply the lactic acid?

Dr. Good: I apply it with a hypodermic syringe. I always warm it before injecting—it flows easy when warm and does not hurt the patient as much as when used cold. I use a common hypodermic syringe.

Dr. Gilmer: Have you tried Dunn's new syringes?

Dr. Good: I have not tried them. I use a warm wash to syringe out the pockets, after removing the deposits.

A Member: How warm?

Dr. Good: Just about body temperature.

A Member: You do not use hydrozone before using the lactic acid for cleansing purposes?

Dr. Good: No.

Dr. Gilmer: Do you destroy the pulps sometimes in these cases?

Dr. Good: Yes.

Dr. Gilmer. You do that by the usual methods?

Dr. Good: Yes.

Dr. Perry: Do you think it is best to destroy the pulp?

Dr. Good: I do, if the tooth is very sensitive, because there is more or less irritation and the healing process is retarded. Many of these teeth are very sensitive, and if the pulps are destroyed they will get well quicker. In fact, I do not think they would get well at all if we leave the pulps intact, although they might in time.

Dr. D. M. Cattell read a paper on "Salivary Calculus." See page 870.

DISCUSSION.

Dr. Robert Good: Dr. Cattell has covered the ground so thoroughly that there is very little left for me to say. I agree with him that we cannot be too particular about instructing our patients to keep their mouths clean. We should continually impress upon their minds the importance of this, because one of the most important things in dentistry is to keep the teeth clean. I do not know of any service that we can render our patients that is of more value to them. We may put in a good filling, but if the gums around the teeth are diseased or in a bad condition, the teeth will in time be lost. Fillings will not save them. Dr. Cattell has given us a fine paper, and I hope we will all benefit by it. I know I will.

Dr. C. P. Pruyn: Dr. Cattell's paper was a good one, and the subject of the thorough removal of salivary and serumal deposits is one of the questions that comes to us every day for solution. I wonder how many of the men who are practicing dentistry to-day make a charge for cleaning teeth. It was a common thing a few years ago to clean teeth without charge, and you doubtless remember how imperfectly the work was done. It is our duty to disabuse the minds of patients that we are going to clean their teeth *gratis*. It is our duty to explain to them the necessity for thorough work in this line, and if we spend one hour or twenty hours of our time in doing this work, we should charge for the amount of time consumed. This work is just as important as any work we have to do, and perhaps it is more important than many of the operations that we are called upon to do.

My plan is first remove the deposits, and in doing this I sometimes cause offense. Some of my patients are so sensitive about this matter that they have an idea that if I charge them for removing these deposits, I am doing a great wrong. Another thing: It is a very difficult matter indeed to remove these deposits painlessly. Of course, we can mitigate the suffering very much by the use of cocaine and other anesthetics, but I find it is one of the most tedious operations I have to perform. I do not have any set price for it. I charge according to the time I consume in doing it. At the beginning we ought to explain to them the necessity for doing this kind of work and how, if it is not thoroughly done, all of our subsequent work will prove a failure sooner or later. We have all had cases present themselves for whom we have done the best we could, and in some cases have lost patients by doing thorough work. I have lost a number of patients in this way, and perhaps some of my fellows have made capital out of it; nevertheless, I have great satisfaction in knowing that I have succeeded in saving a great many teeth in this way that would have been lost if I had not done the work thoroughly.

A case presented to-day. A young woman came to me whom I have not seen for six or seven years. I remembered the case very distinctly when it presented. The pus was exuding from the sockets of nearly all of the teeth. I went at my work rather vigorously and saved the teeth. But what was the result? That patient left me and went to some other dentist because she thought I had hurt her so much, and that I was spending needless time on this kind of work. Nevertheless I saved her teeth.

The question frequently arises, are we doing the right thing to ourselves financially when we take hold of such cases and do the work as thoroughly as we should do it? It is unfortunate oftentimes that we have to have consciences. If we could do our work without a conscience, we would oftentimes make more money. The man that does this work thoroughly and honestly is not the man who makes the most money out of it. I do not care what he charges, he is not the man who will make much money out of it. If I had started out to practice dentistry with the idea of making considerable money, I would not have practiced it along the lines I have been practicing, because there is not enough money in it. It often seems that to make money in dentistry, one should do away with a conscience altogether, as it seems to be the only way to get proper returns for the services that are rendered. It is hard for those who speak the truth and do honest work to make money. I say this in all candor, nevertheless it is a fact, and we must face the fact squarely. Our efforts are not always as highly appreciated as they ought to be, but whether they are or not, it is our first duty to have a principle of right established in our own mind and then go ahead and do that which is right.

Dr. H. D. Noble, of San Francisco, was asked to take part in the discussion. He said: I am very much indebted to the society for this honor. It is a subject in which I am greatly interested. We have always made it a point in our office to impress upon parents the importance of cleaning the teeth of their children. As a rule, they are very negligent in this regard, and it is very difficult to get them to properly cleanse the teeth. If the parents once have a thorough understanding as to the necessity of removing these deposits, they will exercise greater care in the matter and instruct their children properly to care for their teeth. We have all seen patients who come to us with their mouths in such a condition that we cannot do very much for them until their teeth are thoroughly cleaned. While I was a demonstrator in college and had the work of assigning patients to students, I have been more than once disgusted in examining patients for this purpose, because their mouths were in such a filthy condition that in many instances I sent them home, impressing upon them the necessity of cleaning their teeth and mouths and getting them in as good condition as possible before presenting themselves to the students for work.

Dr. R. C. Young, of Anniston, Alabama: This subject is very interesting to me, and this is the first case of pyorrhea alveolaris that I have ever seen cured, if it really be cured. I think pyorrhea alveolaris is beyond the shadow of a doubt a leprosy of the mouth. There are many causes which bring about this pyogenic condition, so that I hardly think anyone is justified in saying that he has really cured a *bona fide* case of this disease

The question arises, can we possibly cure the infection by local treatment? In many cases the condition is largely systemic. Many theories have been advanced as to the etiology of this disease, and we are mystified. The man who discovers the means for curing pyorrhea alveolaris will be as great a benefactor to the human race as was Jenner, who discovered the vaccine virus. After listening to this discussion and the report of Dr. Good's case, I shall go home with greater energy and renew my efforts in treating this disease. I regard it as one of the most difficult operations in dental surgery to cleanse the roots of these teeth mechanically.

Dr. B. A. McGee, of Denver: I was much pleased with the presentation of the case of pyorrhea alveolaris by Dr. Good. It is a disease which is quite prevalent among our people. We have a dry climate in Colorado, and there is much alkali in the water. The majority of the people there get very little acid in their diet, and for this reason we have more cases of pyorrhea among our people than in any other part of the country, possibly. We have not been able to successfully combat the disease. We have used Craven's method of treatment; we have used the lactic acid method with some success, but I am sorry to say the majority of our cases have not been successful in this regard. In ligating the loose teeth caused by this disease we have used pure copper wire, and the chemical action of the copper seems to have a beneficial effect for a short time. We leave the ligatures in about three weeks.

Dr. C. P. Pruyn: Replying to the last speaker, who has referred to dryness of climate and the alkaline water in Denver, I desire to say that in my opinion, the dryness, or even humidity of the atmosphere has little or no apparent effect upon the formation of either salivary or serumal calculus.

A few years since I visited the Bermuda Islands, where it is very damp, and rain water is the only water used there, and I found just the same deposits upon the teeth there that I have seen in Chicago, New Orleans, New York, Colorado, Arizona, New Mexico or California. Neither climatic nor dietary conditions seem to predispose to it, or grant immunity therefrom. Both vegetarians and meat eaters seem alike susceptible to this disease.

Dr. F. H. Skinner: I have a word or two to say with reference to the amount of pain endured in removing these deposits from the roots of teeth. If one uses a strong solution of cocaine and handles his instruments carefully, the amount of pain is comparatively small. I have been in Dr. Good's office and watched him work, and from seeing him and a little experience of my own, I believe the work can be done with comparatively no pain unless the tooth itself is sensitive. If the deposits are patiently and thoroughly removed, and the tooth put at perfect rest the disease will soon disappear.

In reference to doing away with conscience and charging good fees, a man needs as much conscience in practicing dentistry as in doing anything else; he should make a good charge for his work and have the conscience to back it up with good work.

One of the gentlemen referred to using medicines in the treatment of pyorrhea alveolaris and said that he had not had satisfactory results. I do not believe we will accomplish much by any medicine without proper instrumentation behind it. The first thing is to have properly shaped instruments, then handle them properly, use lactic acid and look for good results. To me, the handling of a case of pyorrhea as Dr. Good handles it was a revelation in the treatment of pyorrhea alveolaris.

Dr. George B. Perry: I would like to say a word or two in reference to Dr. Cattell's paper. I believe too much stress cannot be laid upon the necessity of keeping the mouth in a hygienic condition. I thoroughly agree with him on that point; but I want to protest against the indiscriminate use of the toothpick. There is a great deal of danger in the use of toothpicks as we get them in the various restaurants about town. The ordinary wooden toothpicks are made of cheap wood, and oftentimes little splinters are left in the gum which create considerable irritation and are the source of many evils. The only kind of toothpick to use, in my opinion, is a quill toothpick, trimmed down narrowly, with rounded straight edge on either side, and rounded at the point. It may be trimmed down to about an eighth of an inch in width, having it long and slender. The ordinary wooden toothpicks are an abomination and should not be used under any circumstances. Floss silk is one of the best things to use, but it is difficult to get people to carry it. The quill toothpick trimmed after the manner I have described and rounded at the edges gives the best results from my observation.

Dr. George W. Haskins: It was not my intention to say anything on this subject, but I have in mind a patient who has been under my care from time to time for a good many years. She is the mother of five young children, and is a very busy woman. I had scolded her about not keeping her teeth clean, and although she would brush her teeth regularly, when I saw them they would be coated with a thin paste. I instructed her how to use the brush in cleaning teeth, but it was of little use, and it was not until I had her bring her brush to the office and brush her teeth before me, was I able to direct her efforts so she brushed her teeth clean and kept them so; and I feel that I rendered her more valuable service than though I had filled many cavities well.

I frequently prescribe a child's toothbrush for the adult mouth. In many instances the toothbrushes are too large and one cannot get around the mouth with them. You cannot reach the back teeth well on either jaw nor the incisors on the lower jaw, particularly on the labial surfaces.

The point I wish to lay stress upon is to watch the patients and see that they brush their teeth clean when they brush them, and show them how to do it if they do not, and prescribe brushes for the individual cases. A good way is to have them brush their teeth before a glass so that they can see that the brush reaches all parts of the mouth.

Dr. Fred B. Noyes: I want to speak of one point in connection with the use of the toothbrush which was brought to my notice by Dr. Bonwill. Nothing is more important than to instruct the patient in the use of the toothbrush. You will find when you question patients regarding this matter, that nine-tenths or more of them brush the teeth with a forward and backward motion across the front of the mouth. Perhaps some of them go back and forth and up and down the lower incisors, but there is not one in ten who uses the upward motion on the lower teeth and the downward motion on the upper teeth systematically, so as to carry the bristles from the gum to the teeth with a wrist motion, so as to press the gums against the teeth and force everything out of gingival spaces. The late Dr. Bonwill said that we should take the brush and put the bristles flat against the sides of the teeth, then do not scrape it back and forth, but wriggle it round and round. These bristles will slide over all the surfaces and down into the proximal spaces in a way which a motion from the gum to the crown will not do, or a motion across the teeth, and this wriggling motion in connection with the motion from the gum toward the crown is of great assistance in cleaning the surfaces of the teeth. What is meant by the wriggling motion may be illustrated by putting a clothes brush on a tube and then without moving the brush from its position move the back in a circle. This is the motion used in scrubbing floors.

Dr. H. C. West: The gentleman from Alabama suggested something in regard to systemic treatment, and whether there is anything in connection with the theory of uric acid in the blood as having a bearing upon pyorrhea, I do not know. But I have successfully used lithia systemically in connection with local treatment in at least half a dozen cases, and instead of suggesting Londonderry or Buffalo lithia, I have used Warner's lithia tablets, using the three grain tablets, three to four a day, each tablet being taken in a glass of water.

Dr. Truman W. Brophy: With reference to the methods of procedure in removing salivary deposits, and the history of the development of these deposits, I wish to say that the essayist has presented the subject in an interesting and very concise manner. He has told us of the origin of these deposits, and of their nomenclature, and he has spoken of the presence of these calcific deposits in other parts of the body. I want to make a suggestion in regard to the nomenclature that has come down to us from the distant past. It has come to us in certain forms and expressions that do not convey exactly what we mean. I speak particularly of the deposits which frequently are referred to as lime salts. This expression is a misnomer. We have no lime salts here. We have no lime salts in the teeth themselves. Lime is the oxide of calcium; the deposits we see and come in contact with upon the structure of the teeth themselves are calcific in character. Calcium in its different forms embraces the carbonate and sulphate and the fluoride of calcium. There is no oxide of calcium in the teeth, nor in the deposits upon the teeth, except in rare instances it might be found. The calcium deposits we find in different parts of the body come direct from the blood itself. We should not depend upon the use of water that is charged with calcium salts. We need not expect any marked change if we take and use rain water, because that is almost free from calcium salts. We use the salts of calcium as artificial food. We take it in the cereals; it passes into the system, and is utilized in building up the osseous tissues in the infant. As we go along further we have more salts than we want. Men become rheumatic. Their joints become somewhat stiffened by the excess of this substance in the tissues. We find in certain cases that the arteries become calcified. I had a sad experience a year or so ago. I operated upon a very aged man and found that his arteries were partially calcified. In performing the operation we encountered a hemorrhage which was difficult to control. So we have calcium salts deposited in the arteries, which are absolutely consolidated by them.

A patient came under my notice about eight years ago whose axillary and femoral arteries became so calcified that the man had one limb after another amputated because of gangrene, and there was no other recourse. Finally he died. We have deposits in the form of gallstones; we have renal calculi; we have deposits in the bladder; we have them in the liver itself sometimes, so we may find them almost anywhere. Where we have circulation we have deposits of calcium salts. We have the same thing in deposits upon the roots of teeth, from the salivary glands, and, as we have been taught and it has been clearly demonstrated to us, these deposits sometimes come from the serum of the blood and not from the saliva.

I have the greatest respect for the people who endeavor to have the human family clean their mouths and teeth. It is a work which must be accomplished slowly. The impressions that are now being made upon mankind as to the importance of keeping the mouth clean are so inadequate to the requirements when we consider the great mass of human beings that need this advice and care. When I think of these things, I am obliged to go back and repeat some of the statements I have so often made, some of which are threadbare. We are doing very little as compared with what there is to be done in this regard. One of our distinguished confrères from the State of Tennessee, whose eloquence is known throughout the dental world, Dr. Crawford, once made a remark in the American Dental Association, when somebody was lamenting over the great number of young men that were being introduced into the dental profession, said: "Gentlemen, if you will supply every dentist and every physician in America with the scalers and instruments such as have been exhibited to us and turn them loose upon the American people and ask them to remove the salivary calculus from their teeth, they would not be able to do it, because they could never get it done." I imagine the number of people who have salivary calculus on their teeth that are not having it removed. We cannot dwell too long upon this question of keeping the teeth clean. We cannot dwell too much upon the importance of teaching the young and old how to keep their teeth in good condition. After a child has started to clean its teeth we should impress upon it the importance of keeping it up until the end of life.

With reference to the matter of conscience referred to by Dr. Pruyn, I really cannot agree with him, and I cannot illustrate my position more clearly than to make use of Dr. Pruyn himself as an example. There is not a man practicing dentistry in my opinion to-day who is more expert in the manipulation of gold, in the adjustment of beautiful fillings that will preserve the teeth than Dr. Pruyn himself. I cannot pay him a higher compliment than to say he is one of the world's most skillful operators. I know that he has been conscientious in his work, and I know that his patients appreciate that conscientiousness. I know that they have due regard for his skill. I know that they appreciate him as a dentist, and I know if he had adopted any such course as he has alluded to, for the sake of getting money, he would not have had one-fourth of the money that he has to-day. His patients would have deserted him and gone to somebody else. Conscience in a practitioner is a desire to do justice to all and to do his duty to his patients; it is a determination to do the most skillful operations he can possibly do. If a man is not conscientious in the discharge and performance of his lifework, of what benefit is it to him in the end? He certainly cannot make money in the true sense of the word. I am one of those who believe that the ordinary quack, the man who goes out and flaunts his advertisements to the world and stands on the street corners and seeks patronage, not only does not make money, but he is a disgrace to our profession. He is doing nothing toward lifting it up. He is degrading it. He degrades himself, and his children can never say with any degree of pride when their father has passed away that he was an honored member of the community and of a great profession. They cannot do it. It will not be so with my friend Dr. Pruyn when he has joined the silent majority. His wife and children can say that he was an honored member of an honored profession. Gentlemen, I feel intensely on this subject. We ought to do all within our power to make the dental profession better, lifting it up, and if a man can do just a little in life to make his calling better, and to lift it up, he has not lived in vain.

Dr. George N. West: I was very much interested in the paper of Dr. Cattell, and I may say that I have paid a great deal of attention to the condition of people's teeth, particularly during my early experience as a student. My preceptor was a man who claimed that he could clean any set of teeth in fifteen minutes. I did not agree with him, and it is because of this fact that I started out in the world for myself. I have seen some of the dire effects from this imperfect treatment in his practice. For several years I have tried to impress upon my patients the importance of cleaning their teeth. It is well known that some dentists say they make no charge for cleaning teeth, while others do. I have had two interesting cases, one of them a notable one. A gentleman, for whose family I have done work for a number of years, came to me one day to have a tooth extracted. It was very loose. I said to him, "Why do you not have your teeth cleaned and save them?" He was very much surprised, and said: "Well, doctor, the last time I went to a dentist, which was twelve years ago, he told me never to clean my teeth, and I never have." Some dentists advise against it, and this we have to overcome.

Dr. Cattell (closing the discussion): Some four or five years ago I read part of a paper on this subject, and Dr. Brophy at that time called attention to the use of the term lime salts, and asked that the matter be looked up. I think he is mistaken in what he has said, but it is hardly necessary for me to give the reasons therefor at this time.

As to the remarks of Dr. Perry concerning toothpicks, there are toothpicks and toothpicks, but I would rather wear my teeth or gums out, stick them full of little splinters and do a lot of other things with a poor toothpick than to use none and allow garbage to remain. I would rather clean them and have a little inflammation set up than be dirty and have a good deal of inflammation. I deplore this cry against the use of the toothpick. Of course, there are good ones and bad ones, but that question need not be discussed here. If you cannot get a good toothpick, use a poor one, so as to get rid of the debris that collects between the teeth, and the foul odor which results from fermentation if you do not use toothpicks of some description.

I want to say something about losing patients by cleaning their teeth. I do not agree with Dr. Pruyn in that regard. I do not believe we lose patients by so doing. I have had many patients come to me from other dentists because they would not clean their teeth, and several years ago I acquired quite a little reputation for cleaning teeth. I did a good deal of this work for people and made a kind of specialty of it. At that time I got a number of patients from other dentists, and I do not know that I have ever lost a patient by cleaning his or her teeth and charging for it. A number of years ago, during the first practitioners' course that was held in the Chicago College of Dental Surgery, the subject of cleaning teeth was discussed before the class, and the question arose as to how many dentists made a charge for cleaning teeth, and how much did they charge? Of all the members that spoke there was not one who said that he ever charged more than two dollars for cleaning teeth, and most of them said they did not make any charge at all. These gentlemen were criticised for not doing so by Dr. Brophy and others. It simply shows that there is great negligence and lack of business methods in this direction. In proportion to the expense for materials, etc., I make more money cleaning teeth than in doing any other one thing, because there is no money spent for materials. It is simply an expenditure of energy, and that, in my opinion, is the greatest expense of anything I do. It is extremely tiresome to clean teeth all day long, and toward evening one feels very much exhausted unless he has a strong constitution. Cleaning teeth is one of the meanest things we have to do, and we should charge a good round fee for doing work of this kind. If we did nothing but clean teeth we would wear out early, and somebody would have to take care of us in our old age.

INCIDENTS OF OFFICE PRACTICE.

Dr. George W. Haskins: About two years ago a gentleman came to me with trouble which required devitalization of the pulp and removal of the nerve in an upper right third molar. The roots were small and tortuous and required enlarging. This I did prior to filling until a small Donaldson broach passed freely. I used compressed air in drying them. While doing so my patient complained of trouble. I paid but little attention to it at first, but he still insisted that the compressed air was causing trouble. I could not fill the roots that day, and so took off the rubber. When I did so he said, "Just feel this up here (indicating)." I felt it, and it was emphysematous. It was markedly crepitant, and I was puzzled over it. There was nothing to do but wait, and to shorten my story the patient made a good recovery. Inside of seven days all evidence of the presence of air had passed away. From the first there was but little pain and no inflammation. The air I used came from the basement, and I was certain that it was not aseptic, and I was naturally much concerned to think I had infected so large a territory by using this air. I procured a skull and studied the possible ways in which the air could pass through the tooth into the region it had and found several small openings where the posterior dental vessel enters for the supply of the superior teeth. I found these were not present but in a small percentage; the air had passed through the tooth out of these openings in under the temporal fascia, as high as the temporal ridge, inflated the tissues and made them emphysematous. I recall one other case in which, after filling the roots of a temporary tooth in an adult mouth, the air passed through the tooth and out through the external fistulous opening and puffed up the mucous membrane that had formed over the old opening. I made some inquiries among physicians who do throat and ear work, and one or two aurists told me that serious trouble sometimes arose in insufflating the middle ear through the Eustachian tube. Cases are on record where the cellular tissue surrounding the pharynx was so inflated as to seriously endanger the life of the patient by suffocation. I also found one or two cases where the uvula has been amputated, and the compressed air, which was used to carry the medicament to the parts, had blown up the uvula until it looked like a plum.

The air which I used was under a pressure of about fifteen pounds.

HIGH GRADE AMALGAM FILLINGS.

Dr. C. P. Pruyn: I have jotted down a few things for consideration in connection with incidents of office practice. During the last two years there has been a craze for what is known as high-grade amalgams, and I wonder if any better work is being done with the so-called high-grade amalgams than was done fifteen or twenty years ago with the amalgams that were in use then. Take some of the high-grade amalgams, select twelve different men and let them fill twelve different tubes of steel and we will probably get the same results in the twelve different cases. But if you select twelve different men to fill twelve different teeth in different mouths, you will get twelve different results, because the personal equation of the operators will show very markedly. A good deal will depend upon the operator himself and his method of operating; much more so than upon the amalgam itself. Take the old Lawrence amalgam. When I look at some of the amalgam fillings that I put in with this material twenty years ago, and many of you have seen them, and find that they are in good condition and standing well, it is a question in my mind whether we do any better work to-day with the so-called high-grade amalgams. A good deal depends upon thoroughness in the manipulation of the material, and this leads me to say a few words regarding conscience. Are we doing our work as thoroughly to-day as it should be done? There is only one thing for us to do, namely, to be just as thorough as possible in treating every case that presents. Attention should be paid to every detail, and we may use an amalgam that by many would be considered inferior, and yet have superior results because of the thoroughness with which it is used, and the proper preparation of the cavities.

Another thought presents itself with reference to finishing our work. At our State society, held a week or two since at Springfield, one gentleman prepared a cavity in a lateral incisor. It was imperfectly prepared according to my ideas and those of the majority of operators present. We criticised the man very thoroughly on account of his imperfect preparation of the cavity, but when he had the tooth filled it made a presentable filling, and the supervisor of clinics passed on that finished filling favorably.

I always get some excellent ideas from the State society. Dr. Black made a speech which was very good, in which he made a plea for conservatism, to look at all points in the case, and study the conditions under which we operate. We do not always do this. Specialism is dwarfing in its tendencies, as you all know, and it is only by the greatest effort on our part as specialists that we are able to keep abreast of the times in our profession. We do not study enough. Compare the amount of study that the dentist does with that of the lawyer, and is there any comparison? I do not think so. We are classed among the learned professions, and as a profession, how much study and research do we pursue as compared with the other learned professions?

It was my good fortune when a medical student to fall under the teaching of that prince of teachers, Dr. Allen, who had many peculiar methods of instructing students, and among other things, he said we should study or observe three things, viz.: Always observe the condition of the part, the condition of the blood, and the condition of the nervous system, and on these three predict the success or the failure of the case, whatever it may be. As dentists, do we observe these three points? Do we, as a rule, look beyond the condition of the part? Most of us utterly disregard the condition of the nervous system, of the blood, and the environments. Let me make a plea here to observe the three conditions I have mentioned; the condition of the part, the condition of the blood, and the condition of the nervous system.

Another thought. Do you charge for treatment? If you should go to a physician he would charge you for treatment. We should likewise charge for every treatment. Make our patients understand that we are professional men, and that if we treat a case we should be paid for it.

How many of you impress upon the minds of your patients the necessity of returning at stated periods for examinations? Do you say to your patients, I want to see you three or six months hence? Do you notify your patients about this? I do. I have a great many patients whom I notify and say to them, I want to see you again at the end of three or six months, as the case may be, and if you wish, I will put your name on my appointment book, and at the end of that time I will notify you. If you do not care to have me notify you, all well and good. You will have to shoulder the responsibility. But if you want me to take charge of your case, I will take pleasure in notifying you from time to time so that you may call for examinations. It is a duty to our patients to do this.

When do you send out your bills? I think they should be sent out the day after operations are completed.

Dr. Good: What do you mean after the operation is completed?

Dr. Pruyn: Well, take the case of the gentleman you presented here to-night; when you are through with the case, send out your bill. If you do not do this, you can send out a bill and get some money in the meantime. In the average case that presents, where the fillings are all put in and you are ready to dismiss the patient, you should send in your bill at once. Do not wait until the first of the month. Send it out immediately, so that the patient may know the next day what his bill is.

What is your system of payments? We could spend a whole evening on these points. Business methods should be taught in our dental colleges. I recall one physician who sends out his bills at once and gives ten per cent off if paid at once, and this man is successful as a business man. He finds that most people take advantage of the discount. It occurs to me that we, as dentists, might become better off, and do good to our patients and ourselves at the same time if we were more systematic. As a profession, we have a bad reputation for paying bills. If you will take some of the commercial rating books, and go through the list, you will find a bad mark put down against some of us. This is largely because we have not been taught business principles and methods. I would suggest that some time in the future this society take up this subject and thoroughly discuss it, and ask for light from the older men and put ourselves upon record in a systematic business manner.

A word or two with reference to the use of potassoacain for the immediate anesthetization of pulps and their removal, etc. I use it frequently and very successfully. I suppose you are doing the same thing. It is very seldom that it is necessary to keep it in contact with the tooth more than from three to five or eight minutes. The pulp can be anesthetized to great depth, and removed at once. I am pleased with its use. I have been surprised at the readiness with which we can attack pulps with it that are in a semiputrescent condition. I have seen pulps that were half dead, and extremely sensitive, thoroughly anesthetized with it so that they could be removed at once and root fillings inserted immediately.

Dr. **Robert Good**: In reference to the remarks of Dr. Pruyn about sending out bills, if a patient comes to me on the last day of the month he gets a bill on the first day of the next month. It does not make any difference how much or how little I do for that patient. I do not wait until I finish working for a patient before I send a bill. I send my bills the first of every month and expect them to be paid.

Dr. **Pruyn**: Suppose you should finish your work for a patient in the middle or toward the latter end of the month, what would you do?

Dr. **Good**: I usually wait until the first of the month before sending a bill.

NOTICE—NEW COLLEGES.

To Whom It May Interest:

At the annual meeting of the National Association of Dental Faculties, held at Niagara Falls, 1899, the following action was had:

"*Resolved*, That a commission, consisting of three persons, be appointed, whose duty it shall be to take cognizance of, investigate and advise with any parties contemplating the establishment of a new college or the reorganization of an old one."

In the performance of the duties of this commission it shall be competent to take into consideration the following points, viz.:

All the circumstances that attach to it; the motive for it; the proposed locality; the character and ability of those who propose to conduct it; the resources that may be available for its establishment, and any other points that may have a bearing for or against the establishment of a proposed college.

The attainment of full knowledge on these points would enable the commission to advise wisely.

Any parties or party having in contemplation the organization of a new dental college, or the reorganization of one already in existence, are requested to communicate with this commission for conference.

It shall be the duty of this commission to report to this body at each annual meeting, giving in detail such facts and conditions pertaining to the subject as the commission may find.

Commission:
J. Taft, Chairman, Cincinnati, Ohio.
Geo. E. Hunt, Indianapolis, Indiana.
Frank Holland, Atlanta, Georgia.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITOR: A. E. MOREY, PH. B., D. D. S.

EXTENSION FOR PREVENTION.

In looking over the mouths of people you meet on the street, in public places and in your own private operating room nowadays, you are struck by the extensive amount of exposed gold on the labial surfaces of many teeth. A few years ago—less than twenty—this was not so apparent in Chicago, for the best operators did not cut away the labial walls so freely and the faces of teeth were preserved in many cases for years before this became a necessity. The whole system of extension for prevention is only a revamping of the idea expressed in another way by the pioneers from 1830 to 1860. They simply filed away face and all of the tooth that would not stand the pressure of forcing gold into a cavity by hand. After the discovery of the cohesive property of gold many frail walls were left by careful and skillful operators for cosmetic purposes. Now all is changed. The merest tyro in dentistry goes to work and cuts and slashes on labial, lingual and proximal faces of teeth and builds gold against the walls regardless of esthetics or of the future looks of the patient. Extension for prevention is all right when applied to proximal surfaces of molars and bicuspids if done with judgment, or even on incisors or cuspids, but the idea that the labial faces must always be cut away, even if frail, is not sound practice. I would rather have my teeth filled in this manner than to have so much gold shown to the world. Then again these extensive gold fillings get battered and broken from wear and tear and changes in the relation of the teeth to each other so that there is no certainty that such extensive, glittering fillings will remain longer in a tooth than those where they are built behind frail walls. Just think of this the next time you are tempted to do this thing with a tooth. It requires skill and careful manipulation to build gold under the enamel and over the end of an incisor to preserve the face of it. This is skill well spent in very many cases when gold would be unsightly. Our own preference in many cases where it is absolutely necessary to cut frail enamel away is to fill with platinum gold, as being less objectionable in color. We have endeavored to speak on this subject from the standpoint of the patient, feeling sure that his interests are paramount to all others.

THE FRAUDULENT DIPLOMA TRAFFIC.

As long as there are countries where strict laws are not in existence or laws are not enforced there will be found purchasers of bogus diplomas. At present many of the bogus diplomas issued by the "fraud machine" in Chicago are sold in Australia and New South Wales, according to recent newspapers which have reached us from Sydney. (There is no law in New South Wales at present.) All of the owners and proprietors of the bogus Metropolitan or Independent Medical College have been indicted and will probably get their just deserts from the United States courts in due time. The bogus diploma has no standing in any country where proper supervision is exercised by the examiners or registrars. One source of the income from the bogus diploma mill is the old dentist who had no diploma when the law in his State or county went into effect and a false pride induces him to buy these worthless parchments which he can take to a new region where laws do not exist or are laxly enforced. (This specimen will soon die out.) The other and larger class will be found in other vocations in life, anxious to change into what promises to be a lucrative business, superior to what they are in. Desire for wealth or to make money easy or make it somehow is at the bottom of most of the bogus diploma business for the seller and the buyer.

DOMESTIC CORRESPONDENCE.

LETTER FROM DR. OTTOLENGUI.

NEW YORK, November 3, 1900.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—I had promised myself never again to take part in personal discussion in journals, but a letter from Dr. J. Austin Dunn, on page 847 of your October issue, seems to force me to make reply, as I have only recently, editorially, expressed disapproval of plagiarism, an act of which, apparently, I now stand accused.

This accusation, if accusation it be, seems to be rather in your own headlines than in the communication from Dr. Dunn, and I think it very probable that you mean it as a joke. Personally, I am not above laughing at a joke, even when it is on myself, but I am not certain that your reputation as a jester is widely known, and it seems probable to me that some of your readers might take you seriously.

Dr. Dunn says that, in the July *Items of Interest* I gave "what purports to be an original method of removing a gold crown," and then he informs us that he, himself, described the method in the REVIEW of 1894.

The facts absolve me entirely, and therefore I beg leave to give them.

In the first place, I never saw or heard of Dr. Dunn's method until the present publication of his claim. I did not receive THE DENTAL REVIEW for several years, the volume of 1894 not being in my library, 1892 being the last bound volume I have prior to 1897.

Secondly, I used the method long before 1894, and happen to be able to recall exactly when I first did it. I had a case of very short bite, for which I made a crown having a solid gold occlusal surface, which crown was placed over an abraded, but living tooth. Some months later, the pulp evidently having died, I desired to remove the crown without injury to the band or the sore tooth, and I did it by the method under discussion. A paper describing the crown itself was read before the Brooklyn Dental Society, September, 1890, and will be found in *The Cosmos* for that year on page 930. According to my records, the tooth gave trouble and the crown was removed and replaced after treatment during November of 1890. All this merely to establish the fact that I have borrowed nothing from Dr. Dunn, having used the method before his publication, which never reached my eye at all. I am not endeavoring, however, to make any claim of originality, and in describing the method as a casual communication to the Second District Dental Society, nothing was further from my thoughts than to claim originality, though I find that in the printed report I did say, "This is my method." But this was extemporaneous talk, meant to be synonymous with the phrase "This is how I do it," and not to convey the idea that I was making a claim for originality. It probably was original with myself, for I have no recollection of having received the method from any one else. Nor do I doubt that it was original with Dr. Dunn. All dentists who do justice to their patients should be able to originate such simple things as this in time of need, and it would not surprise me at all to learn that a hundred or more dentists have done the same thing, all of whom, so far as I am concerned, are welcome to consider themselves the originators.

There is another side to this question which must be considered. Progress in dentistry relies almost entirely upon the willingness of men to give to others such modes of procedure as help them in their work. If this cannot be done without a charge of plagiarism, where the communication does not include the names of the one or many originators, it would be manifestly impossible for any one to impart knowledge at all, as we cannot expect to be able to discover the first users of all methods, and especially of simple things such as this.

Very truly yours, R. OTTOLENGUI.

DR. DUNN'S ANSWER.

CHICAGO, November 13, 1900.

TO THE EDITOR OF THE DENTAL REVIEW:

In reply to Dr. Ottolengui, I wish to say that my charge of plagiarism was based on his article in the July issue of the *Items of Interest*, which would certainly convey to the casual reader that the method in controversy was original. To controvert this impression I simply stated the RECORDED facts. What Dr. Ottolengui says in regard to originality is among the possibilities, and for the most part true; but in this instance it is a question, as I had used the method several years before it was given to the Chicago Dental Society.

If I overlooked Dr. Ottolengui's extemporaneous remarks on the subject before the Second District Dental Society of New York, I think I am excusable, because I am not an editor and am not supposed to accurately see and know all that is recorded in dental literature, which the doctor evidently failed to do.

Yours truly, J. AUSTIN DUNN.

NORTHERN ILLINOIS DENTAL SOCIETY.

October, 26 1900.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—I have just returned from the meeting of the Northern Illinois Dental Society and to say that we had a most *galorious* time is putting it very mild, indeed. In the first place, the local committee of arrangements had provided an elegant hall centrally located and very convenient for our purpose, and then there was a larger attendance by twenty members than ever before on the first day, and that made the president happy; and of course when the presiding officer is happy, it makes us all happy; and then after he had delivered his address full of bouquets for us all, Dr. Cormany read a paper on "Success, or Poverty Conquered." When we started out with happiness assured by our president and all fear of poverty removed, we were in a splendid state to have a good time. The symposium was great, taking in so many different subjects, all the papers short and to the point and a very happy exchange of opinions was given upon the different subjects discussed, all to our mutual advantage. Among the good and new points and suggestions brought out were Dr. C. J. Sowle, of Rockford, holding the matrix in place with separating rubber, and Dr. W. H. Taggart holding the matrix in place with a wood wedge accurately fitted to place and then put on the wood a drop of water. This causes the wood to swell and holds the wedge firm in place. And again Dr. Taggart suggested commencing your filling with a narrow matrix and finishing with one that reaches the occlusal surface. Those who use nitrous oxide gas received a great many pointers in how to make it, how to administer it, and position of the patient when extracting, etc., which they will not soon forget, from Dr. Nevius, of Chicago.

Drs. Taggart and McCandless, of Chicago, and Dr. Carmichael, of Milwaukee, gave us so many new points in crowns and bridges and things pertaining thereto that the meeting was well worth the attending if for no other thing.

We were all very much benefited by the discussion upon the first permanent molar, led by Dr. Gail B. Elliott, of Elgin, and the discussion led by Dr. J. W. Cormany, of Mt. Carroll, upon "Gold or Amalgam, which?" So much so that all these talks or points brought out are to be taken down in long hand and preserved hereafter in our published proceedings. I think a great many will profit by the splendid exposition of the good qualities of the Bonwill articulator, by Dr .C. W. Davis, on the staff of the Chicago College of Dental Surgery. The report of the supervisor of clinics will give you the information in regard to them. The holding of the election of officers, etc., at the beginning of the last session instead of its close, was a grand success. We accomplished the work in no haste, and when the treasurer announced he had, after paying all expenses, $113 in the treasury, we clapped our hands and shouted success assured and poverty conquered. We meet the next time in Joliet "and don't you forget it." We will have a bigger time than this. Long live the Northern Illinois Dental Society.

ONE WHO WAS THERE.

P. S.—Drs. Harlan and Hinkins told us so many good things they enjoyed at the dental congress, that we all sighed and wished we had been there.

FOREIGN RELATIONS COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

BUFFALO, N. Y., October 24, 1900.

To the Deans of the American Dental Colleges, Members of the National Association of Dental Faculties and to the Members of the Foreign Advisory Boards.

GENTLEMEN:—The regulations of our National Association place the supervision of foreign educational matters which affect American colleges in the hands of the Foreign Relations Committee and of the European Advisory Boards.

At the last annual meeting some new regulations were adopted, which limit to a certain extent the reception of foreign students, take the matter out of the exclusive hands of the deans and make it uniform in all the colleges by requiring the approval of the association through its proper committee, whose decision must be reviewed at the annual meeting. We think all will comprehend the advisability of this, that the deans may have some rule by which they may be governed and be enabled to avoid the responsibility of the acceptance of credentials in foreign tongues with which they may not be acquainted.

We all agree upon the desirability of some uniform standard which shall apply to every case, and which will be just to all. It is quite probable that the regulations adopted at the last meeting of the National Association, which were recommended by the Foreign Relations Committee, will need amendment as we obtain further knowledge concerning foreign equivalents. The Foreign Relations Committee will each year present to the association any new information which they may have upon the various subjects, and be prepared to make such recommendations as in their judgment will best secure the end in view. In obtaining this knowledge the Foreign Relations Committee must necessarily depend very largely upon the Advisory Boards. To these positions have been appointed the men who in the minds not only of the Foreign Relations Committee, but other well-informed members of the profession whose advice they have sought, are best qualified to perform the necessary duties. Hence we feel that we may rely upon their recommendations, and as they are so completely and honorably identified with us and are aware of the responsibility resting upon them, we do not fear that our confidence will be misplaced.

The regulations adopted at the last annual meeting of the National Association have been widely published; they have been incorporated in a pamphlet circular of information and sent to everyone concerned. Hence all have had an opportunity for knowing just what was the action taken. We trust that before the next meeting of the association all will have so fully considered the situation that they will be better enabled to act than they were when the regulations were adopted.

Since the annual meeting at Old Point Comfort, the members of the Foreign Relations Committee have carefully consulted with each other, and have unanimously arrived at the conclusion that it is not wise to attempt the enforcement of the regulations during this year, for the following reasons:

First, those regulating the giving of advanced standing in our schools were not adopted until after the announcements of the colleges for the current year had already been published and distributed. It has been established by precedent that in such instances legislation should not go into effect until the next succeeding year.

Second, the regulations adopted at Old Point Comfort could not be promulgated until students from foreign countries had already, in some instances at least, sailed for America, and it would be an unjustifiable hardship to make them subject to new rules with which they had no opportunity to become acquainted.

Third, it has appeared to us advisable before attempting to enforce them, that the new regulations should be published to the world for the benefit of all concerned, that it might be learned if in any way they work injustice, are impracticable, or are not in accordance with the laws of this or other countries.

Accordingly, the deans who have forwarded to the committee the papers of students have been informed they can use their discretion in the case of those from Great Britain, Germany, Austria, Switzerland, France, Holland, Belgium, Sweden, Norway and Canada, subject always to the subsequent approval of the National Association. Even although there may be some technical lack of observation of the rules, the Foreign Relations Committee will take no cognizance of it, so long as the deans act in good faith, always provided that the students shall obtain the approval of their papers by the Advisory Board of the country from which they come.

The above relates solely to the giving of advanced standing in our colleges on the basis of attendance on foreign schools, which may be offered as an equivalent for courses in our own institutions.

Concerning the preliminary educational and moral qualifications, and the reception of foreign students as members of the freshman class, the approval of the Advisory Board for the country from which the student comes should in all cases be insisted upon as provided by the regulations adopted at the annual meeting for 1899. Should a foreign student present himself without certificate, the dean may upon his own responsibility, receive him temporarily, on condition that within a reasonable time he shall secure such approval. If this is not done, the student shall be dismissed before the middle of the term and no credit be given him for his attendance.

This ruling of the Foreign Relations Committee may seem somewhat unnecessary, but it is deemed best that it shall be promulgated by means of this circular, that there may be no misunderstanding or misconception of the law of the association. It is not to be understood that the Foreign Relations Committee desires to assume any authority not fully conferred upon them by the National Association, to which in every instance it is responsible. It desires to so inform the deans and others interested that trouble may be saved, that there may be a full comprehension of the situation, and that it may not be imagined they are in any way attempting to interfere with established custom, or with the published rules of the National Association.

Yours truly, W. C. BARRETT,
Chairman Foreign Relations Committee.

LETTER FROM NEW YORK.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—We said in our last that we would have some news for you this time.

As some other dental journals have much of the matter relating to the New Jersey Dental Commission out before your magazine appears, our letter may not be as newsy as we wish it might be. A copy of the charges preferred to the Governor of New Jersey were in our hands at the time of our last letter to you, but we were desired not to use them because the matter was not public. We venture to hope, however, that our presentation may be acceptable. As usual, New Jersey seems to be always "on deck" in one way or another, but for matters at home first, we will take up New York societies.

The First District Dental Society of New York held its October meeting on the evening of the 9th inst. at its meeting room in the Academy of Medicine.

Following the wake of the Brooklyn meeting of the previous evening, a motion was carried to draw upon the treasury for $50 for the relief of one of the sufferers by the Galveston disaster, who was a dentist. The hat was then circulated and $76 additional gathered in.

After the usual routine business, Dr. George W. Weld was introduced as the essayist of the evening. While the title was "Immediate Root Filling," or words to that effect, the paper was very general in its character, only indirectly touching upon immediate root filling. The attendance was very good, many undoubtedly expecting to learn something new.

In the discussion which became very general, Dr. Meyer L. Rhein was the first to be heard. He inveigled against the sulphuric acid method, saying it had been superseded by better methods. He referred to the fact that one might be so imbued with his own idea of how to do a thing as to overlook the fact that others might not look upon it in the same light, and that one who claimed to fill the roots immediately, by that statement made without qualification, might mislead others into the belief that it was *always* safe to do so, when no one has made that claim.

Dr. George Evans was opposed to the use of gutta-percha or chloro-percha on the ground that it would *always* contract, in his experience at least, and the "last end of that tooth be worse than the first." He pinned his faith on oxychloride as a root filling material.

Dr. L. T. Shields said but little, much less than usual for him, on this subject, which he is so thoroughly conversant with, but what he did say showed his opposition to anything like immediate root filling in the majority of cases.

Dr. W. W. Walker was opposed to the reading of such papers on the ground that we are not students but practitioners, that we all know how to fill roots, and this "threshing old straw" is getting to be a bore. He said that he would have objected to the paper but for his old time friendship for Dr. Weld. The majority present, however, were not of the same mind with Dr. Walker and rather "called him down." Dr. John I. Hart, in opposing Dr. Walker's idea, agreed that immediate root filling might be desirable if one was absolutely sure that asepsis had been obtained. Dr. Rhein claimed that this asepsis, whether for immediate or future filling, is to be had *absolutely*; others claimed that it could only be *approximately* sure, if such a term can be used. Apparently there is no definite knowledge of *when* asepsis, has been secured. Dr. Goldschmidt, advocating the use of oxychloride for root filling, stepped upon Dr. Daly's toes when he inveighed against the use of cotton for such purpose. Dr. Daly was on his feet in an instant quite "hot under the collar," for he is evidently a believer in its use, *i. e.*, cotton for filling root canals. Dr. Tracy supported him in regard to the length of time he had known cotton to remain sweet and wholesome in root canals, but some one remarked, *sotto voce*, "the foramen must have been very small then or closed entirely by debris."

The consensus of opinion as deducted by Dr. Weld in closing was that immediate root filling in all cases was not desirable.

The writer, while agreeing with Dr. Walker in some respects as to the character of the paper, its quality especially, does not agree on the " student point." We are *always* " students," else we would never accomplish things, but would remain in a rut all our lives.

Monday of the week following, October 15, the "Jerseymen" gathered in their first fall meeting, at the old place, Simon Davis', on Broad Street, Newark. The Central Dental Association of Northern New Jersey, President H. S. Sutphen, presiding.

The usual course dinner of this society, at 6:30 P. M., preceded the meeting proper. The attendance was extremely gratifying, as might be expected, when it is realized that a large number had heard that Dr. Chas. A. Meeker had been brought up before the Governor of New Jersey by his fellow-members of the New Jersey Dental Commission (Board of Examiners) on charges of incompetency, and had also heard that the Governor *dismissed* said charges. They went to congratulate Dr. Meeker and give him their moral support. One who of late has seldom attended dental meetings, said: "I heard there was going to be a row, and thought I would come down and see it." The dinner was good and music fine, and things went along swimmingly until the session was well under way, when the following resolutions, signed by many members of the society, were introduced, and after a little opposition, passed with only a few dissenting votes:

WHEREAS, Since our last meeting certain charges have been preferred against Dr. Chas. A. Meeker, the man who was one of the founders of this society, and who has continually been an officer of this society for twenty-one years, during which time he has served this society with distinguished faithfulness; and

WHEREAS, Said charges were made against him by G. E. Adams, G. Carleton Brown, F. C. Barlow and E. M. Beesley, his fellow-members of the Dental Commission of the State of New Jersey, all of whom are likewise members of this society and subjects to its discipline; and

WHEREAS, Said charges, filed with the Governor of this State, accuse Dr. Meeker of wrongdoing and incompetency, in that they allege that in a specific case he did award to a candidate twenty votes, whereas his accusers, after considering in a secret meeting the same papers, found that but six questions had been correctly answered, out of a total of thirty, so that the candidate should have received but six votes; and

WHEREAS, At a public trial before the Governor, Dr. F. C. Barlow, one of the accusing members of the commission, under oath did testify that he had in the past examined under two of Dr. Meeker's subjects, so that he, Dr. Barlow, did feel competent to judge of the papers in dispute, and that he had examined the papers, and had found that the candidate had correctly answered but six questions; and

WHEREAS, Dr. F. C. Barlow, still being under oath, on cross-examination was made to express his opinion separately of each of the thirty answers in the disputed papers, with the result that he admitted that twenty-two of these answers were wholly or in part correct, thus contradicting his affirmative testimony that but six were correct; and

WHEREAS, The Governor has rightfully dismissed the charges and exonerated Dr. Meeker; be it

Resolved, That it is the opinion of this society that our honored member, Dr. Meeker, has been the victim of an unjustifiable attack, and that he is entitled to and is hereby tendered the hearty congratulations of us, his fellow-members, upon his refutation of the accusations made against him. And further be it

Resolved, That these resolutions be spread upon the minutes, and published in the dental journals, as well as in the public press of this State, wherein the charges against Dr. Meeker have appeared, to the just end that he may be fully exonerated.

Dr. B. F. Luckey, of Paterson, N. J., then introduced a set of resolutions he had privately drawn up, which, while somewhat milder, were quite to the point.

These passed *unanimously*. If ever a man had reason to be proud of the support of his professional brethren, Dr. Chas. A. Meeker has that right, now. The following are Dr. Luckey's resolutions:

WHEREAS, Charges of incompetency and inefficiency have been lodged with the Governor of this State against a member of the Board of Registration and Examination in Dentistry; and

WHEREAS, Such member of the Board of Registration and Examination in Dentistry is also a member of this society in good standing and of good repute; and

WHEREAS, Such member having practiced dentistry in this State for more than thirty years and during that time been one of the most progressive and active members of the profession—having held all the offices of honor that could be bestowed by both the State and Central societies—who before the operation of the present dental law was for years the State prosecutor of violators of the dental law, the duties of which office he discharged with marked ability and discretion; who has been honored with office by the National Association of Dental Examiners, and who has been regarded for many years by the profession in this State and practically every State in the United States, and in many parts of South America and Europe as a professional man of ability and attainments, one whose professional course was worthy of emulation by the younger members of the profession; one who by his fidelity to trusts imposed upon him has done more to elevate and advance the interests and good name, as well as fame of the New Jersey State Dental Society and the Central Dental Association of Northern New Jersey than any other member of either of the societies, and one who has never before been charged with dereliction or neglect in the discharge of official duties, it seems right and proper that we, the members of the Central Dental Association of Northern New Jersey, in regular meeting assembled on this 15th day of October, 1900, in the City of Newark, New Jersey, should give public expression of our feelings and sentiments concerning the charges that have been made against our fellow-member and treasurer, Dr. Charles A. Meeker, of Newark; therefore, be it

Resolved, That we, the members of the Central Dental Association of Northern New Jersey, express to Dr. Charles A. Meeker, a member of this society, our confidence in his professional ability, his fidelity to duty, and his untiring devotion to the cause of dental education and advancement; and be it

Resolved, That a copy of these resolutions be forwarded to the Hon. Foster M. Voorhees, Governor of this State, and also spread upon the minutes of this society.

This matter having been thus adjusted, the regular order of things went on.

Dr. W. C. Chase, of Philadelphia, was the first on the program with a paper on "Ethics." While he did not present anything new, what he did say being that which we all know so well concerning our duty, he did say it in a very pleasant manner, and it brought forth a rambling discussion in which many present joined, some stoutly maintaining that it was best to have a strict code of ethics and live up to it, keeping all who could not or would not do so outside the pale of our societies.

Others were in favor of "letting down the bars," as it were, and admitting to our societies many who now cannot get in. The "Golden Rule" was spoken of by one as being as good a code of ethics as could be desired.

Following this Dr. Meeker gave some "Echoes from Paris," detailing to some extent what he saw at the Dental Congress in Paris, but not giving anything beyond what has appeared in the dental journals of this country since the congress.

We said nothing else, but there were certain allusions to the fair damsels of Paris, caused by the picture of one which adorned the menu of the evening. If any of your readers are interested we have no doubt they can obtain copies of the menu with this beautiful picture by addressing Dr. Meeker.

In referring to the matter of the difficulty in the New Jersey Dental Commission it seems lamentable that matters should have gone to the extreme they have, and to an unbiased outsider it looks very much like a case of personal antipathy and spite. It is sincerely to be hoped that the commission will accept the inevitable and endeavor henceforth to work together for the good of New Jersey. [The charges against Dr. Meeker, the Governor's notice and Dr. Meeker's reply, with other interesting matter was published in the New Jersey papers, copies of which have been seen by the editor.]

The Odontological Society started its season on October 16, at its meeting room in the Academy of Medicine, with its President, Dr. W. W. Walker, presiding, calmly, though pleasantly. The attendance was not large, but the discussion animated.

Dr. Jarvie advanced a suggestion which might be valuable in practice of accomplishing a special result, particularly—as outlined by him—the keeping of mouths of patients clean by detailing an assistant to call upon those of one's clientele who desired it, once a month or so; not to treat diseased conditions but simply to insure healthy dental organs after a mouth had been properly cared for by the operator and to relieve the patient of the inconvenience of stated visits to the office.

In the opinion of the writer such a plan might be carried a trifle further and include the treatment or rather the "dressing" of pulp canals previous to the filling of those canals by the operator, and generally the care of such eruptive stomatic treatments that usually consume much of a busy practitioner's time as well as being a tax upon the patient, whether the man of business or the lady of society. Dr. Jarvie's thought was not expanded upon a great deal in meeting but it will bear a great deal of sound thinking.

Passing to the paper of the evening, which was written by William Herschfeld, D. D. S., of Paris, France, the title of which was "Irregularity of a Front Tooth Corrected by a Porcelain Inlay," which was read by Dr. B. C. Nash, it can be said that just enough was said about the operation to elicit considerable discussion and conjectures as to what Dr. Herschfeld really did accomplish.

The operation evidently consisted of the placing of a porcelain side and incisive edge on a lateral incisor, which tooth in erupting presented its "quarter" (disto-approximal) surface to view, thus seriously disfiguring the mouth. The doctor explained that he used gutta-percha to shape a normally posed incisor in the space, then marked with ink on the tooth the periphery of the gutta-percha, after which he removed the g. p., ground a ridge which would receive the edge of the inlay, made retaining points, made a matrix and fused the Jenkins' body to restore the contour.

Dr. Ottolengui was first called to discuss the paper. He took exception to such procedure with such a case, deeming it more advisable to devitalize the pulp, remove the crown and restore with an artificial substitute a properly posed tooth.

Dr. Head, of Philadelphia, of porcelain inlay fame, was present, was called upon to say a few words to the paper, and announced that he wished it understood that for once he and Dr. Ottolengui agreed, although in the course of his remarks it seemed as though he did not consider Dr. Herschfeld's operation as impolitic. Even conservative Dr. S. G. Perry (and he is quite a porcelain inlay advocate) thought a crown tooth might answer the purpose better.

Dr. Norman W. Kingsley, who has been in retirement for some years until the past few months, was present at this meeting. He antagonized Dr. Ottolengui in his blackboard deductions and showed by drawings that the operation under consideration might be done well with no disfiguring appearance.

The discussion became general between the knowing ones (on porcelain) as to methods of fusing, high and low body, color and shadow problems, which withal was quite instructive.

But, with all the pros and cons the fact remains that Dr Herschfeld has performed a successful operation, the beauty of which was attested by Dr. Walker, who said similar operations shown him by the essayist looked perfect in the mouth.

During the course of the discussion Dr. Head made quite a pithy statement in saying that many are doubtful as to the efficiency of porcelain.

He says that gold as a filling material is equally doubtful as to its conserving powers, and it must be conceded that he is right.

Yours truly,

THE "BOROUGHS."

REVIEWS AND ABSTRACTS.

Facts, Fads and Fancies About Teeth.

Compiled and edited by H. L. Ambler, M. D., D. D. S. Illustrated. Published by the Helman-Taylor Co., Cleveland, Ohio, 1900. Price, cloth $2.

This is a book of 310 pages, with a poetical preface by L. P. Bethel, of Kent, Ohio, editor of the *Ohio Dental Journal.* There are many curious things in the book, showing that the compiler has been an energetic scrap collector. There are rhymes and recipes and lots of funny things within its covers, and much curious information about teeth. Just how funny or valuable it is can only be told by the reader. There are general headings with subjects as follows: Appointments, in the office, the dentist, wit and humor, women in dentistry, quacks, baby's teeth, the mouth, bacteria, X-rays, the jaws, the gums, toothache, filling teeth, gas, curets guilding, tortuous customs, tooth lore, etc. This book will help to pass away an idle hour or two. We have not had time to verify some of the historical part which we presume from the erudition of the author is up-to-date.

Impressions from Reading the Transactions of the Illinois State Dental Society, 1900. By Garrett Newkirk, M. D., Los Angeles, Cal.

One and another had written to me that the meeting this year was hardly up to the standard. That the papers and discussions were on the whole below the usual average. Well, maybe so, but at this distance, cut off from my old associations, those same papers and discussions make very refreshing reading for me. If they fall below the average it speaks well for the average.

Of course, we older fellows must expect that in every such meeting there will be more or less thrashing over of straw that to us seems old. That is inevitable. It is so when we go to church. If we have been attentive listeners and to some extent bible students since we were children, we hardly expect to hear much that is new to us in the ordinary sermon. The best we can do is see some old truth from the preacher's point of view, and possibly a new illustration or practical hint.

The fact is, we are like so many cups that hold but a pint at a time. When new material is crowded in, something old gets crowded out of our immediate memory.

Did you ever look over some of your old articles, Mr. Editor, papers written, say ten to twenty years ago, and observe how fresh they seemed, and how much you could learn from them? Perhaps you have said as I have to myself, "Well, old fellow, that was a very good paper. There are several things in it I'd forgotten about since. It is better than I could do now."

In going over the papers and discussions of the State society I can hardly say I found much that was really new, but there were a lot of old questions interestingly considered. Some practical truths were *emphasized* in a manner to make them very impressive. No one can tell how much good is done to the younger members of the profession, and often to the older ones, too, by the frequent reiteration of ideas.

"Line upon line, precept upon precept, here a little and there a little," is a scriptural maxim perennially new. The slowness with which ideas seem to permeate the mass of professional gray matter, the indisposition of so many to lift their wheels out of any sort of a rut, the obstinacy with which they resist any form of progressive thought which runs counter to their preconceived notions or habits of practice—these are the things that render necessary the presentation again and again, of simple underlying principles of theory and practice, statements so often repeated that to some they seem stale and commonplace.

For example, it seems to me odd, that some fifteen years after the introduction of the Perry separators, it should be necessary for Dr. Black or any one to stand up in a dental society and defend their use. It seems strange to me that any one could be discovered, even in the most out of the way place in Christendom, who would decry their employment. They are absolutely indispensable to a first-class operator. No man can do as good work in the restoration of contour and for the preservation of interproximate spaces without them. That their reasonable use should destroy the pulps of teeth is the statement of nonsense. I have used them for fifteen years constantly, and I can say that I have never known an instance of the sort in my own practice, nor have I seen a case coming from anybody else.

Separators are valuable, first, for the examination of the teeth for decay upon their proximal surfaces; second, opening into such cavities and holding the teeth apart for the introduction of gutta-percha stoppings which may also act as wedges; third, in preparation of cavities for filling; fourth, during the insertion of the filling, in sufficient mass to provide for restoration of contour; fifth, for finishing of the filling to the best form, with proper contact points; sixth, for the steadying of loose teeth, not only for space but to make them comfortable during operations; seventh, there is nothing which can take their place for holding teeth apart for the removal of superficial decay and polishing the remaining surfaces. We may add to these use number eight, that where wedging is necessary for one or more days, between teeth that are very firm and close, the separator may be used with great satisfaction to secure space for the introduction of orange wood or tape, so that the use of the tantalizing rubber may be avoided.

Some one should have mentioned that wherever the points impinge upon the gums they should be held off by pieces of gutta-percha placed between the bows and the teeth. For this purpose old-fashioned, hard sheet gutta-percha is better and firmer than any of the forms of "stopping."

It has been a common remark of men when urged to attend society meetings, "Oh, the proceedings will be published. I can get the whole thing by waiting till the journals come out, and read them at my leisure."

They make a great mistake in this. They never do get "the whole thing;" *never*. The truth is that we never quite understand what a man writes, or the report of what he says, till we know the man himself.

Some say more than they mean, some less. With some there is always between the lines a vein of humor, with others no humor at all. Nearly every man, too, has some sort of bias for which allowance must be made in the acceptance of his "facts," or in the estimate to be placed upon his conclusions. With one, conviction seems to go with his every statement, because we know the man. With another it does not, for the same reason.

In reading the reports of discussions by men I know, I seem to see them as they speak, with every attitude and gesture; I hear their voices, with the intonations and inflections peculiar to each. So I read, having them all, as it were, before me. Sometimes I am distinctly reminded that I have heard the same thing before, possibly several times in substance, from the same speaker. Our thoughts are likely to run in grooves, and when we strike the same subject, after an interval of years, perhaps, we repeat our remarks, often very nearly.

When Dr. C. rises to the question of No. 10 gold or the teaching of patients as to the care of their teeth, I know just about what he will say, for did I not edit those same sayings long ago? And they are good sayings, too. Like the Twenty-third Psalm or the Ten Commandments, they are always good, and worthy of endless repetition. We never get tired of them, any more than we do of bread and butter.

It seems to me that the most important matter of the proceedings this year was involved in the paper "Pyorrhea Alveolaris, So-called," and the discussion following.

That alone was worth "the price of admission." Those who spoke had something to say, and Dr. Harlan came as near saying "the final word" as any one could perhaps in the present state of our knowledge.

But there was one thing left out, as there is usually when I am not there, and I warrant you have guessed already what it is. There was no mention made, I think, of the fact that sometimes there are sections of the cancellated alveolar structure truly carious, that the *bone* should be examined and soft portions burred or scraped out. This is just as important as the removal of deposits from the roots of the teeth, sometimes more so. I have had an obstinate, long persistent case yield promptly upon the thorough removal of a thin disorganized alveolar wall. I shall keep on saying this as long as I live, or till somebody pays attention to it.

I imagine that the interest in the State society suffered a little this year by reason of the approaching International at Paris. American societies were somewhat overshadowed. Some of the members of the Illinois society no doubt attended the meeting as a matter of duty simply, from pure loyalty. It went "against the grain" to make the Springfield trip so near the time of their going east. Some of the papers, too, while very good as compared with papers of other societies (note my partiality for Illinois), yet seemed hardly up to the usual mark of their authors. One imagines as he reads that they were tired when they wrote them. And I can sympathize with them. I've been there myself.

But if any one attends the Illinois State Dental Society, *any* year, with any program, and doesn't get paid two or three times over for his outlay of time and dollars, I will say that the fault is his. The fraternity and sociability alone do pay for all, and what one gets more is clear gain. No one who has been a member for years and attended its meetings can estimate the benefits to himself, nor can he possibly know how much he may have done for others.

ADDENDUM.

Since writing the above, the October number of the REVIEW has come to hand with Dr. MaWhinney's paper, "Antiseptics and Disinfectants," and the brief discussions thereon. This paper is a stunner; I have gone over it several times to discover if possible a loophole of escape from some of its conclusions. It would seem that we don't know nearly so much as we thought we did about destroyers of the staphylococcus pyogenes.

If the experiments can be repeated with the same results as those here tabulated, and there is no reason I imagine to discredit them, it would appear that we have as yet scarcely any certain agent in the materia medica.

All our standbys are positively discredited. This is not to confess that they are complete failures, not by any means. We have in the main been successful with them in practice. We have cured, we do cure abscesses, right along, and nature helps us, too, occasionally, which she does not in a test tube experiment.

In most cases, with the conditions which exist in the mouth and especially in root canals, by repeated, persistent effort, we succeed in the direction of antisepsis. We accomplish by repeated treatments what we should no doubt do at once if we had one remedy on which we could absolutely rely. And here we meet another difficulty. Given a certain medicine, say one of the by-products of coal tar decomposition, like creolin or trikresol, we can never be sure of having two samples exactly alike. I note that of all the well known remedies, creosote alone, "Old Creosote," makes about the best showing. Cassia, Series C, 8, which we don't dare use, comes in next.

For the disinfection of instruments we may as well "acknowledge the corn" at once, that our only sure dependence is heat, say 160° C., about 320° F., for ten minutes. Within this limit I believe their temper and ours will be safe.

And now it remains for some inventive genius to give us a practical oven for this purpose with a centigrade thermometer attached. Without this we are sure to be using instruments not wholly aseptic. It is doubtful if many offices, dental or surgical, could be found in the United States where instruments could not be discovered which would infect broth.

I was told recently of a case where the dentist after injecting an abscess, used the needle for introducing a local anesthetic, preparatory to extracting a tooth in the same mouth. Consequence, patient is in the hospital with blood poisoning and probably necrosis of the jaw.

But we cannot apply 160° C. in the root canal of a tooth to its apex for ten minutes nor for any time, to say nothing of the abscess beyond the apex. So here we shall be compelled to experiment and feel our way as heretofore unless perchance one, two or three of the new agents are able to sustain the reputation suddenly thrust upon them, and shall prove to be innocent of harm to the patient while death to the *Staph.* (That's a long enough name.)

We shall await with keen interest the results of other experiments which will no doubt soon follow.

Congratulations on the symposium of experiences relating to the International Congress, published in October.

DENTAL METALLURGY; A MANUAL FOR THE USE OF DENTAL STUDENTS AND PRACTITIONERS. BY CHARLES J. ESSIG, M. D., D. D. S., Professor of Mechanical Dentistry and Metallurgy in the Dental Department of the University of Pennsylvania. New (4th) edition, thoroughly revised by Augustus Koenig, B. S., M. D., Demonstrator of Metallurgy in the Dental Department of the University of Pennsylvania and Assistant Demonstrator of Histology in the Medical and Dental Departments, University of Pennsylvania. In one 12mo. volume of 277 pages, with 43 engravings. Cloth, $1.75 net. Lea Brothers & Co., publishers, Philadelphia and New York.

After a careful reading of the fourth edition of this book, there is little to criticize. It is fully what the author intended it to be; a work on metallurgy for both practical and scientific use. It is well adapted to the use of the busy practitioner, and should be in the hands of every one of them. Its value will be greatly appreciated, now that metallic work of all kinds requires individual manipulation to a greater extent than at any time for the past twenty years or more.

It is also well adapted for the use of the students in colleges. There has been added to this edition, a series of experiments for use in the laboratory, which might have been more extensive and of the sort to be generally applied to practical conditions. This will undoubtedly be done in some future edition, as its value can hardly be overestimated.

It is also of value to the teacher, as its arrangement is systematic and good.

The incorporation of the latest researches and investigations in regard to alloys and amalgams is one of its best features.

On the whole, the book has retained its important place in our dental literature, is well bound and the text and illustrations are excellent. A. O. H.

PRINCIPLES AND PRACTICE OF FILLING TEETH. BY C. N. JOHNSON, M. A., L. D. S., D. D. S., Professor of Operative Dentistry in the Chicago College of Dental Surgery. With illustrations. Philadelphia: S. S. Dental Manufacturing Company; London: Claudius Ash & Sons (Limited), 1900. Price, cloth, $2.50.

An expression of the methods of an operator and teacher so well known in the profession as the author cannot fail to attract unusual interest.

The difficulties of presenting a work dealing with a special department in dentistry, without exhibiting the limitations of the individual, is well exemplified in the present volume. There seems as yet no happy medium between the encyclopedic "systems" on the one hand, and the "personal experiences" on the other. To write such a book, there is perhaps no man better qualified than Dr. Johnson, both from the point of view of the scholar and the operator. In this instance there is evidence of hasty preparation. The book is poorly planned. It seems to consist of a series of essays, or perhaps it is a report of lectures insufficiently edited and intended more as a textbook in his own classes than for general consumption.

Chapter I, headed "Deposits on the Teeth," contains wholesome lecturing on the necessity of removal of calculus as a preliminary to other operations. The lesson taught by conditions described is evident enough, but the author fails in emphasizing the need of giving patients instructions to prevent recurrence of deposits. The paramount importance of toughening the gingival tissue by proper brushing, receives inadequate notice.

The pathology of dental caries is rambling and pointless; the facts are so well known that they should be set forth with scientific exactness. Confounding the gelatin-forming with the acid-producing microörganisms is an error.

No practitioner will read the author's methods of preparing and filling different classes of cavities without benefit. There is a pedagogic adherence to the ideas peculiar to the individual which it would be captious to criticise here, but these ideas will be modified after the student engages in practice. Among them may be mentioned the extension of proximal cavities of front teeth labially to prevent black appearance; the use of inverted cone burs; the introduction of gingival retention grooves; the preference for flat surfaces upon which to build gold; the predeliction for platinized gold for visible fillings; the extensions of proximal fillings beyond the gingival line to prevent recurrence of caries; sharp angles within margins.

The principles involved in the formation and filling of cavities as they are formulated are safe in the main, and combined with the empirical knowledge which comes with actual practice may be depended upon to work for perfection.

The subject of wedging for proximal fillings, that stumbling-block to so many, is ably handled and replete with valuable suggestion. The stress placed upon the proper trimming of margins is of excellent effect. In the chapter on amalgam there is a suggestion to have alloys and mercury measured in proper proportion in capsules of suitable sizes for each operation, which is most valuable, feasible and has the additional distinction of being unique.

The treatment recommended for infected pulpless teeth is sound and should have a lasting influence on this most exacting part of the dentist's work. The author will place the profession under still greater obligation to his pen if he will bring out revised editions from time to time, as no doubt will be required.

NOTES ON THE IRREGULARITIES OF THE TEETH. BY J. F. COLYER, L. R. C. P., M. R. C. S., L. D. S., London, England. Published by the Dental Mfg. Co., London. 243 pages and 325 illustrations. Price, cloth, $3.00.

Mr. Colyer, who contributes this new work on irregularities of the teeth, has written on the subject of irregularities before, contributing several chapters on this subject in Smale and Colyer's book on "Injuries and Diseases of the Teeth." According to the author's statement in the preface, this work consists of a series of lectures delivered to the dental students of Charing Cross Hospital, revised for book form. So seldom do we see a complete work of this kind from across the water that it is with considerable interest we review its contents. It is a work of 243 pages, divided into twelve chapters. It is well written, and the subject as considered is brief, concise and to the point. It is printed in large, clear type and profusely illustrated in splendid half-tone work. The first chapter briefly reviews the causes or etiology of irregularity. Chapter II follows this up with the general principle of treatment. Chapter VI considers the "early treatment of crowded mouths." Early interference is, without a doubt, the best course to adopt when forms of malocclusion make their appearance early, but I hardly agree with the author's method, consisting of early extraction. Early extraction is certainly a most injudicious method, for by thus forcing a malposition eruption of the succeeding permanent teeth, the effect is felt not only upon the harmonious relation of the arches, but upon the occlusion and facial appearance as well. The occlusion of the teeth can never be restored to normal again after one or more of the permanent teeth have been extracted. If nature has failed to do her duty in the proper development of the arches, and it becomes necessary to consider early interference, why not aid nature to develop to the normal, instead of laying the foundation for future trouble? Some interesting points are made in his consideration of the occlusion of the teeth, the results upon the other teeth from extraction and changes brought about by the force of mastication. As occlusion of the teeth is undoubtedly the basis of the whole subject of malocclusion, it is to be regretted that the author has not carried the subject into a broader field—that of comparative dental anatomy.

In Chapter V some good thought is presented upon the eruption of deciduous and permanent teeth, and the effect of the local influence. Regardless of his advice and theory of occlusion and eruption of the teeth, when the consideration of the treatment of cases is taken up, he not only favors the idea of extraction of from two to four of the permanent teeth, but even advises the extraction of the laterals to make room for the cuspids and the extraction of the centrals to make room for the laterals; and several cases illustrating this course of treatment are shown in the work. Such advice in a text-book for students is to be regretted; as dentists practice the art of .extraction indiscriminately, fearful indeed will be the results produced by uncomprehending students. Most every one of the cases illustrated have been treated by the extraction method, and usually only one-half of the model is shown. No photographs illustrating the conditions of the facial lines before or after the treatment are shown; and facial art, one of the most important considerations in connection with correction of malocclusion, has not been considered.

In Chapter IX the advice on the probable effect of the treatment for protrusion of the upper anterior teeth is good, and for those who contemplate the treatment of that complex form of malocclusion it is well worth study.

In the way of appliances and general treatment the author has presented nothing new, his work consisting of a brief résumé of the appliances of others. While the work is profusely illustrated with splendid cuts illustrating cases before and after treatment, but few appliances are shown, and the detail or kindergarten work of making, modifying or applying appliances has not been considered. The author seems to favor the treatment of cases by the rubber plate method to the extreme. It hardly seems possible that one with the author's experience would give so much consideration to the bulky, unstable and irritating plate, when it is now possible to either make or buy metallic appliances that possess neatness, stability and effectiveness.

The terms "canine" for cuspid and "premolar" for bicuspid are used exclusively. While these terms are not exactly wrong, usage has decreed that "cuspid" and "bicuspid" are the most appropriate terms. In the study of comparative dental anatomy, when comparing the teeth of man with the lower animals, the term "premolar" is then apropos. The alert manner in which the author has aken up the consideration of the treatment is to be commended. If he had devoted more time and attention to the detail work of the different kinds of metallic appliances and their application it certainly would have added to the value of the book. However, the writer, by his clear and comprehensive method, has produced a book worthy of careful reading and study by every one interested in this branch of dental science.

J. N. McDowell.

MEMORANDA.

Vegetol is a new dentifrice, after the formula of Dr. M. H. Fletcher.

Dr. T. H. Hampton, of Helena, Mont., visited Chicago in November.

Dr. W. S. Hosford, of Iowa City, Iowa, spent a few days in Chicago recently.

The Odontological Society meets at the Victoria Hotel the third Tuesday of the month.

The Odontological Society of New York will hold its anniversary meeting in January, 1901.

And now we have to run after "hemicranin," another sure obtunder and neuralgia killer.

The Odontographic Society meets the third Monday of the month in the Masonic Temple.

When will Chicago or St. Louis wake up to the fact that they are to hold midwinter meetings?

The potent things in this life seem to be antiseptics and disinfectants—all else pales before these agents.

Dr. F. M. Shriver, of Glenwood, Iowa, an expert in crown and bridge, work, was in Chicago recently.

Dr. E. D. Swain, formerly of Chicago, but now retired from practice, was a visitor in Chicago in November.

The Chicago Dental Society meets the first Tuesday in the month in Orpheus Hall, Schiller Building, Randolph Street, between Dearborn and Clark Streets.

November 15, 1886, the first number of The Dental Review was published. Look over the files and see what share we have taken in the world's progress.

A girl went into the shop of a Brisbane chemist and wanted a toothbrush, and "would he please give her a hard one as there were six in the family?"—*Chemist and Druggist.*

The paper of Dr. Tuller with the discussion, which we publish elsewhere in this issue, although read some time ago we believe to be of such importance as to justify the use of the space given to it.—[EDITOR.]

In the use of platinum gold for building down teeth, I have found that great care must be exercised in annealing the gold, unless it is done with an electric annealer. By using it in a short time after annealing the most perfect results can be obtained.

Dr. G. V. I. Brown, of Milwaukee, and Dr. F. T. Breene, of Iowa City, came to Chicago to attend the Fenger testimonial banquet which took place November 3. There were more than 500 physicians present. The banquet was a great success and a monster loving cup was presented to Dr. Fenger by the assemblage.

In cases of septic infection large doses of quinine bisulphate gr. iv. to gr. viii. every two hours and calcium sulphide one-tenth gr. every ten minutes until ten doses have been taken will generally arrest the poison. The quinine may be discontinued after the second or third dose. Give a saline cathartic also.

Dr. C. A. Kitchen, of Rockford, Ill., will leave about November 10 for Los Angeles, Cal., to accept a call from the dental college to act as superintendent of the infirmary in place of the late Dr. Cushing. Dr. Kitchen's abilities in every way fit him for this position. He was on the first examining board in Illinois and ex-president of the Illinois State Dental Society.

Dr. Gordon White is hard at work on the joint report of the delegates to the International Dental Congress held in Paris. This report will comprise the names of residents of the United States, the titles of papers and clinics and copies of the resolutions passed at the last meeting of the congress, including other matters of interest to the government. Drs. Brophy and Walker are also fixing up their data, and the report as a whole will go into the history of the Exposition Universelle.

I will give you a new formula for soothing irritated and lacerated gums:

℞	Boro-glycerine	min. x.
	Resorcin	gr. x.
	Eau de Botot	min. v.
	Water (105° F.)	min. xc.

M. S. Inject between the gum and root. Have the patient hold this in the mouth for two minutes or longer.

The publication of the proceedings of the Third International Dental Congress is progressing all right, according to the latest information. Members of the profession in the United States of America desiring copies can subscribe for them at the rate of 36 francs ($7.20). Dr. W. E. Griswold, 423 Mack Block, Denver, or the editor of THE DENTAL REVIEW will receive orders and insure delivery at the above price. The transactions will appear in two or three volumes and will be copiously illustrated.

CHICAGO, Oct. 22, 1900.

Mr. Editor: In the list of clinics of the Illinois Dental Society was one in continuous gum work, showing how to use other than continuous gum teeth. This is going backward to the old-time methods of fifty years ago, when plate teeth were used and the palate was not covered. Fortunately we have progressed so as to secure better, stronger and more artistic results. I have never yet found difficulty in securing sufficiently long bites in continuous gum teeth; the trouble is when the dentist, by not making the posterior teeth sufficiently long has too close a bite, and consequently too much overbite, and too much closing of the jaws and lips, a very common fault.

Then the covering of the palate with porcelain is one of the great advantages of this work, as thereby the objectionable angle at junction of gold and rubber is avoided and the tongue realizes the natural conditions in the contour of the palate. Yours truly,

L. P. HASKELL, D. D. S.

Charges of incompetency, and inefficiency were preferred against Charles A. Meeker, D. D. S., of Newark, New Jersey, by fellow members of the New Jersey Board of Examiners, and on examination by the Governor were dismissed in this language:

ELIZABETH, Oct. 15.—Governor Voorhees to-day dismissed the charges of inefficiency and incompetency preferred against Dr. Charles A. Meeker, of Newark, a member of the State Board of Registration and Examination in Dentistry. The hearing on the charges took place Saturday in this city before the Governor. In denying the request to remove Dr. Meeker, the Governor, in rendering his decision, says:

"The complaint, among other things, alleges inefficiency, and incompetency on the part of Dr. Meeker. No charge was made against him in his professional capacity. These proceedings have to do with him solely as an examiner in the service of the State, to whom he is responsible for his conduct as a public officer while holding his commission. The charges set forth the unfortunate differences of opinions that are entertained by the members of the board as to its legal status. This is not the time for these.

"The Governor's power of removal is limited by the act creating the board to those cases where inefficiency, incompetency, immorality or professional misconduct are, in his judgment, properly proven. In the charges under consideration, only that testimony can be considered which relates to the specific instance mentioned in the complaint lodged with me. In that case the doctor's marks were much higher than those given by his fellow members after hey had personally examined the papers. From the testimony produced before me, however, it would seem that the papers in question could have been marked higher by the other members without violating the rules and practice of the board as to its markings. At any rate, the difference was not so great as to indicate favoritism or show an utter disregard of the real merits of the paper. The markings allowed by the members of the board rest entirely in their judgment.

"If the examiner, in his consideration of the paper, exercises his judgment with care and with due regard for the purposes for which the examination is held, he has discharged his duty and cannot be regarded as inefficient or incompetent except upon the clearest proof. Under the testimony, as submitted, it seems to me that such proof is wanting in this case, and that the executive is not warranted in removing Dr. Meeker from his office.

OHIO STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of the Ohio State Dental Society will be held at Columbus, Ohio, December 4, 5, 6, 1900, at the Great Southern Hotel.

S. D. Ruggles, *Secretary.*

NORTHERN ILLINOIS DENTAL SOCIETY.

At the thirteenth annual meeting of the Northern Illinois Dental Society, which was held at Aurora, October 24–25, the following officers were elected: President, Dr. W. C. Bunker, Oregon, Ill.; Vice President, Dr. C. R. Currier, Aurora, Ill.; Secretary, Dr. J. J. Reed, Rockford, Ill.; Treasurer, Dr. M. R. Harned, Rockford, Ill.; Member of the Executive Committee, Dr. A. W. McCandless, Chicago. Joliet was chosen as the next place of meeting.

J. J. Reed,
Secretary.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

The third annual meeting of the Southern California Dental Association was held at Santa Barbara on October 8 and 9. The meeting was a very successful one in every particular. The following officers were elected for the ensuing year: President, Dr. A. H. Palmer, Pasadena; First Vice President, Dr. H. W. Moore, Santa Barbara; Second Vice President, Dr. R. F. Phillips, San Diego; Treasurer, Dr. J. M. White, Los Angeles; Secretary, Dr. L. E. Ford, No. 307 South Broadway, Los Angeles.

The next annual meeting of the association will be held in Los Angeles October, 1901.

Yours fraternally,
L. E. Ford, D. D. S.,
Secretary.

THE INSTITUTE OF DENTAL PEDAGOGICS.

The seventh annual meeting of the Institute of Dental Pedagogics will be held in Nashville, at the Maxwell House, beginning at 10 o'clock Thursday, December 27, 1900, and will continue three days.

The program will be forwarded to all the dental journals in time for publication in the December issues. Every one interested in dental teaching should feel it his duty to attend, as it is his privilege to speak on any subject on the program.

The interest of last year will be maintained and the plan of developing thoroughly few topics given a trial.

A most cordial invitation is extended to all, especially to those who are teachers.

Henry W. Morgan,
D. M. Cattell,
W. E. Willmott,
} *Executive Committee.*

A WEEK IN FOUR SECONDS.

The oriental story is familiar, which tells of a man bidden by the magician to dip his head in a tub of water, who passed in mind through a long life of adventures and vicissitudes, during the second of immersion; after which he awoke, and lo, it was a dream. The power of the mind to go through the experiences of a long period in a dream of a few moments is inconceivable, yet indubitable. Psychologists affirm that a dream which carries the sleeper from New York to San Francisco and through all the incidents and scenes of the trip, is not longer than a second in duration. This agrees with the experience of a man who was under the influence of laughing gas for four seconds. "One day, years ago," says he, "shortly after laughing gas was introduced as an anesthetic, I got a case of rip-roaring toothache, and went to a dentist to have the molar snatched out. I remember leaning back in a chair and taking a few whiffs of something that tasted sweet, and then, in the twinkling of an eye, I found myself on the quarter deck of a man-of-war. There was no middle period of drowsiness or confusion; the thing happened in a flash, and, strange to say, it seemed perfectly natural. I understood, without the slightest bewilderment, that the civil war was in progress; that I was an ensign on a Federal cruiser, and that we were in search of the Alabama. I had been in the navy and the routine of the ship was as familiar as my own name, I seemed well acquainted with everybody on this particular vessel, and as I paced to and fro I chatted with my fellow officers about the weather, the war, the chances of the chase and many other topics of the time. The day wore on, evening fell, and I went to mess, where I had a long debate with the doctor on certain operations for wounds.

"After my watch that night I turned in dog-tired and slept till dawn, and, not to fatigue you with my story, a week rolled by, filled with all the innumerable incidents, details and duties of life aboard ship. We told stories, sang songs, lounged for long hours under the stars, and speculated on the probabilities of a fight. One afternoon, to come to the point, we sighted the Alabama, and, after a chase about which I could write a volume, overhauled her, and the battle began. It was no long-range contest, but a duel to the death at pistol shot, and at last, riddled, torn and littered with dead, both ships closed in and the order rang out to clear for boarders. I was one of the first men over the side, and as I landed on the blood-soaked deck an enormous negro suddenly loomed above me with an upraised club. To this moment I can recall my rage and horror at that uncouth assault. I tried to dodge, but too late; the bludgeon struck me squarely on the jaw and with a force that seemed to rend my very skull in twain. I could feel my bones crack like egg shells. The whole side of my face was driven in. I knew I was killed. Then I opened my eyes and saw the dentist holding out my tooth. I had been unconscious exactly four seconds."—*Ex.*

INTERNATIONAL DENTAL CONGRESS.

The following resolutions were submitted for adoption at the General Closing Assembly, offered by the Special Commission:

1. That so far as possible for the study of the different microbes a uniform method of culture should be established.

2. That the manufacturers of dental supplies pay more attention to the wishes expressed by dental societies so far as color of rubber, the natural form of the teeth, the composition of alloys and the manufacture of other dental products are concerned.
3. That the term "Cohesive Gold" should be substituted for "Adhesive Gold" as being a more precise expression.
4. That no dental diploma should be issued to any person under the age of twenty-one years.
5. That the best way to combat charlatanism consists in the education of the public by familiarizing it with dentistry and dental hygiene through the medium of societies, journals and schools.
6. That personal character and honor should be insured by a written pledge taken on entering professional institutions and societies agreeing to practice in an honorable way, that is to say, to abstain from any kind of advertising and other acts contrary to professional dignity.
7. That the required preliminary education of a dental student before his admission to the college should comprise:
    A literary instruction with the knowledge of two modern languages (English, German or French).
    A scientific instruction.
    A manual training.
8. That the period of study in dental colleges should be not less than four years.
9. That the period of study in dental colleges for doctors of medicine should be at least two years.
10. That the proposition of an International Federation of Dental Colleges presented by Mr. J. H. Spaulding, should be referred to the International Commission on Instruction.
11. That an International Dental Federation should be founded.
12. That the National Committees appointed in view of the present Congress should continue and form the International Dental Federation.
13. That at the last meeting of the Congress a commission of nine members should be appointed to examine the conditions of a constitution for the International Dental Federation, to lay the same before the National Committees and to prepare for the next International Dental Congress.
14. That the International Dental Federation should be composed of all the National Committees represented by an Executive Committee. The first Executive Committee, numbering nine members, shall be appointed by the members of the Third International Congress at the last general meeting, on Tuesday, August 14th, and its powers will expire on the opening of the Fourth International Congress, which latter it is charged to organize. This first meeting shall be held Wednesday, August 15th, at 9:30 A. M., at the Dental School of Paris. (The meeting was held.)
15. The Fourth International Congress shall be held at the earliest, within five years, in the country that seems to be best indicated to the Executive Committee after a selection from the invitations tendered by the different National Committees and after an understanding with them. In any case a decision must be taken not later than 1903.

16. That an International Commission on Instruction (education) shall be appointed, charged to compile a list of theoretical and practical knowledge a dentist must possess. This commission shall be appointed by the Executive Committee.
17. That in all public schools an inspection of teeth shall take place at least every six months, and that the treatment of diseased teeth shall be assured regularly, both services being in charge of a dentist.
18. That the principal rules of dental hygiene shall be indicated in establishments of primary education by charts and tables.
19. That dental hygiene shall form a part in the instruction of general hygiene.
20. That wherever the government provides for medical treatment it should equally provide for dental treatment by dentists.
21. That public dental services should only be entrusted to practitioners holding a government dental diploma.
22. That the health service of the armies and navies should include dentists as it already comprises physicians, pharmacists, etc.

RECENT PATENTS OF INTEREST TO DENTISTS.

657,613. Artificial tooth, Evelyn Pierrepont, London, England.

657,633. Tooth-shell slitter, Charles M. Wilcox, New Paris, Ohio.

658,179. Rubber dam clasp, James W. Ivory, Philadelphia, Pa.

658,193. Artificial tooth, Charles S. Talbert, Minneapolis, Minn.

658,480. Case or cabinet, John R. Burton, London, England.

659,196. Dentistry, August P. Johnson, Ada, Minn.

659,039. Artificial tooth, Carl Reinighaus, Munchen-Gladbach, Germany.

659,206. Process of and attachment for building up broken or decayed teeth, John P. Carmichael, Milwaukee, Wis.

659,216. Dental chair, Charles B. Dowling and W. B. Durham, Swansea, S. C.

659,531. Dental articulator, George R. Johnson, Hastings, Michigan.

659,593. Tooth brush, Charles W. Richards, San Francisco, Cal.

TRADE MARKS.

35,197. Talcum and tooth powder, Leopold Mayer, New York, N. Y.

LABELS.

7,793. "Carter Lytle's Tooth Jeline," for a preparation for toothache, Carter Lytle, Baltimore, Md.

7,813. "Pearl-E-Teeth," for a tooth wash, J. W. H. Ahrens, New York, N. Y.

PRINTS.

265. "Fill Your Teeth," for toothache gum, Pansy Toothache Gum, Company, Atlanta, Ga.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

IN MEMORIAM.

RESOLUTIONS ADOPTED BY THE SOUTHERN CALIFORNIA DENTAL ASSOCIATION UPON THE DEATH OF DR. GEORGE H. CUSHING.

WHEREAS, Since our last meeting death has taken from us our most highly honored friend and colaborer, Dr. George H. Cushing, who was an honorary member of this association; be it

Resolved, That in his departure we have sustained the loss of one highly eminent in our profession, a man of rich and varied experience, of most kind and genial disposition, a friend of every honorable practitioner, and especially the helpful friend of dental education and of young men.

Resolved, That in the life of Dr. Cushing we have a high example of faithful, lifelong service to our profession, of devotion to principle, which should be a stimulus to every practitioner and student to a life of noble aims and purposes.

Resolved, That we esteem the memory of his friendship and professional life a precious heritage, to be held and cherished by us throughout our own lives.

Resolved, That a copy of these resolutions be presented to his widow and children as a testimonial of our sympathy and regard.

J. D. MOODY,
GARRETT NEWKIRK,
F. M. PARKER,
Committee.

THE

DENTAL REVIEW.

VOL. XIV. CHICAGO, DECEMBER 15, 1900. NO. 12

ORIGINAL COMMUNICATIONS.

REPORT OF COMMITTEE APPOINTED TO INVESTIGATE WHAT WORK HAD BEEN DONE IN THE PUBLIC SCHOOLS IN THE CIVILIZED WORLD BY DENTISTS.*

BY C. E. BENTLEY, D. D. S., CHICAGO, ILL.

"Your committee, appointed a little over a year ago, to look into the conditions that prevailed in the civilized world with reference to the dental service rendered in the public schools, are ready to report:

1. Circular letters in English, French and German were sent to representatives of the school boards where these languages were dominant, to every city of over 100,000 inhabitants in the civilized world. The list of questions was as follows:

(1) Are the children in the public schools of your city instructed regarding the care of the teeth and surrounding tissues?

(2) Are the teeth of the children in the public schools of your city examined by a dentist, who is officially recognized by the school authorities?

(3) If instruction or examination is in use in your public schools, will you kindly favor the Odontographic Society with information relative to the system employed?

(a) Details of such system.

(b) Time such system has been in use.

(c) Results satisfactory or unsatisfactory?

Believing that the compilation of this information from all parts of the civilized world will do much to enlighten the dental profession in its duty toward children in public schools, and thanking your honorable body for assistance toward this end, etc.'

One hundred and sixty-seven of these circulars were sent, a list of which need not be detailed here, but may appear in the journal publishing this article.

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* Read before the Odontographic Society of Chicago.

The number of replies were.......................................82

The answers may be classified as follows:

1. Number where supervision or instruction were given..........38
2. Number where care of mouth is taught in conjunction with teaching of hygiene and physiology......................14
3. Number where care of the mouth is included in the medical inspection by physicians. 10
4. Number where inspection and instruction are given by dentists and physicians, but no system.....................11
5. Number that were about to inaugurate a system, and anxious regarding all details of systems existing..................12
6. Number where systems have been evolved and results published by dental supervisors..............................7

Under the first head of the classification the largest number of replies came from the United States and England, and the second may also be included in this as well; that is, the care of the mouth was taught by the teachers who had charge of the branches of hygiene and physiology.

Third heading. In parts of Prussia and Denmark inspection is carried on by the physicians who, in making general observations regarding the physical condition of the child, inquires into the condition of the teeth together with numerous questions regarding its diet, hereditary diseases, etc., upon which report the principal makes certain recommendations to the parents.

Fourth heading. In Berlin, Germany, and Salford, Leicester, England, physicians and dentists have combined and the dentists make regular examinations of the mouth and teeth and make recommendations for the correction of irregularities and removal of growths in the mouth, and suggest the restoration of lost tooth structure, incidental to dental caries by the plastics. No system has been evolved, but it is encouraging in that it shows a step of development or tendency that will eventuate in methodical work.

Fifth heading. A large number indicated by their replies that much indefinite thought had been given the subject, but no steps had been taken to reduce these thoughts to a working plan, and they evinced an eagerness for information as to how to proceed. This was most manifest in the replies coming from

England, France, Russia and Germany. The amount of interest evidenced in the order in which their names have been given.

Sixth heading. Tokyo, Japan; Brussells, Belgium; Antwerp, Belgium; Wurzburg, Germany; Bordeaux, France; Strassburg, Germany and Stockholm, Sweden, each have elaborate systems.

Of Tokyo, Japan, in March, 1897, in conformity to the order of the ministry of Japan, a physical examination of all students of the Imperial schools is conducted twice yearly. Special attention is given to the teeth by the dentists of Japan as far as the examinations are concerned. The results so far are noteworthy in the record of the prevalence of decayed teeth, irregularities, etc., and the awakening among the Japanese to the importance of oral hygiene.

Antwerp, Belgium, presents a system in which the municipal government officially recognizes and employs two dentists to examine, instruct, and if its child or its parents or guardian so elects, administer to the dental needs. The service is intrusted to two surgeon dentists, each having twenty-seven schools to inspect every four months. The dental service is a special department of the school system, and these reports appear annually. The system was created in 1898. The service is confined to the kindergarten and what corresponds to our grammar departments.

In Wurzburg, Germany, the teeth of the children of the primary schools are, according to urgent official *request*, examined regularly in the clinic conducted by Andreas Michel, surgeon dentist, and when necessary are treated free of charge. The primary schools of Wurzburg seem to be a preparatory school to the State and university instruction. All children between the ages of six and thirteen are compelled to attend the primary school. The dental work is confined to this department. The character of examination and treatment seems to be thorough. The preservation of the temporary teeth to the reduction of cleft palate are included in its scope.

Bordeaux, France, April, 1898, established in connection with their sanitary inspection service a dental department in the public schools. Said inspection is intrusted to the dental surgeons holding diplomas from the State faculties. Duties: Semi-annual inspection limited to the dentition of the children of the public schools. He also is compelled to report in writing any defects found in the dental examination and report in writing the same to school director. The school director in turn is required to inform the parents of the child of its dental needs. Dental clinics of Bordeaux provide for the care of the teeth of the indigent, care being taken by the law that the free service is not abused. The service of the examining dentist is gratuitous.

In Strassburg, Germany, the children receive careful instruction in the care of their teeth by dentists. They are also on certain days taken to private clinics provided by the school authorities for examination. Carefully tabulated reports are kept of these examinations for scientific purposes. No provision seems to have been made for the care of the teeth in these regulations.

Stockholm, Sweden. In the grammar schools, by an edict of His Majesty in 1889, the careof children's teeth was provided for. The school authorities took no initiative in the examination, and it was not until the Swedish Dental Society in 1890 proposed that the edict become effective that any activity in this department was displayed and a thorough system of examination inaugurated. The whole system seems to be devoted to the gathering of statistics for the benefit of the dental profession. The mouths of thousands of children were examined and a fund of facts regarding the frequency of caries, the oral manifestations of syphilis, rachitis, tuberculosis, cleft palate, etc., etc., are at hand, but no effort appears for the correction or modification of these irregularities. Very elaborate reports of these examinations are at hand and are valuable in their suggestiveness.

An elaborate table of facts regarding the condition of the Teutonic race in Northern Germany is herewith submitted. The school children of nineteen towns were examined. The number of children examined was 9,725. Ninety-five per cent showed dental caries, 372 showed anomalies of various character, including harelip, cleft palate, irregularities, V-shaped jaws, and but one case demonstrated congenital syphilis. Another feature of the tables showed that the left upper teeth were more frequently decayed than the right upper, and that the reverse was the case with the lower teeth. The society proposes to publish the investigation and present a copy to the German government in the hope of getting national aid in the further prosecution of this work. I present the table sent me for your study and reflection:

TABLE OF THE GIRLS.

		DECIDUOUS TEETH.		PERMANENT TEETH.					
Age.	No.	Extrd.	Decayed.	Extrd.	Decayed.	Filled.	Perfect.	Brush.	Fracture.
6- 8	3,139	3,971	10,271	129	2,298	14	312	269	2
9-10	2,337	3,908	5,194	386	4,856	21	219	313	6
10-12	1,596	9,146	1,517	438	4,349	92	114	322	. .
12-15	2,073	6,869	766	2,271	4,891	176	152	325	3
Total,	9,145	23,894	17,748	3,214	16,394	303	797	1,229	11

TABLE OF THE BOYS.

Age.	No.	Extrd.	Decayed.	Extrd.	Decayed.	Filled.	Perfect.	Brush.	Fracture.
6- 8	2,921	3,389	9,743	511	2,423	. . .	105	141	3
9-10	2,653	5,492	5,862	392	5,851	26	268	208	6
10-12	1,922	8,421	2,269	760	4,270	22	149	188	5
12-18	3,084	7,442	1,156	1,497	8,101	115	172	121	11
Total,	10,580	24,744	19,030	3,160	20,645	163	694	658	25

PERCENTAGE TABLE OF ALL CHILDREN.

	6-8 yrs.	9-10 yrs.	10-12 yrs.	12-15 yrs.
No. of children examined..	6,060	4,990	3,518	5,157
Children with perfect teeth	407 (6.8%)	268 (3.4%)	149 (4.3%)	172 (5.5%)
Per cent with caries	93.2%	96.6%	95.7%	94.5%

I need draw no conclusion from this state of facts, as they speak for themselves, other than to note the apathy and utter indifference that exists in the United States toward the important question. The alertness of the European countries to develop any plan that has for its aim the betterment of the citizens and their children is in striking contrast to the apathy of this country in such matters. Of course, we may explain the difference in the wide difference of government. The nearer a government is to paternalism the more careful it seems of its own, as compared with a country where individualism and all it stands for is supreme. Be that as it may, the dawning of the importance of this subject is here, and it behooves the societies of Chicago and elsewhere to take the matter under serious consideration and promote its agitation wherever and whenever they can. It will be largely a matter of local agitation. Conditions peculiar to a community will have to be considered and methods adjusted to such conditions as found.

I desire to acknowledge my indebtedness to Drs. Snow, Gramm and Wassall for their helpfulness in the translations.

A CASE IN PRACTICE.*

BY DR. C. EDMUND KELLS, JR., NEW ORLEANS, LA.

Here is presented a photograph showing a typical case of prognathism.

The lower posterior teeth articulate just one tooth back of the normal bite, and the lower incisors are fully an eighth of an inch too long.

Now, it is not my purpose to carry you through the various stages of the treatment of this case, for this would be but a repetition of what you have frequently read and listened to; but my object is to call your attention to one particular feature.

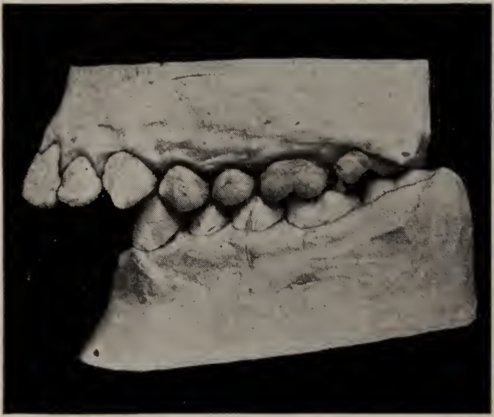

FIG. 1.

Let me premise by stating that while this class of deformity must be quite usual in other sections of the country, judging from the writings upon orthodontia, in our own section, that is in Louisiana and Mississippi, I believe I may safely say that it is very rare.

The usual types of irregularity with which we have to contend are of quite the opposite nature. Instead of contracting arches, we are constantly required to expand them, and to rotate teeth in crowded arches.

Consequently, I must admit that the case under consideration was the first in which I decided to use occipital anchorage for the reduction of the abnormality.

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*Read before the Odontographic Society of Chicago.

The Angle system, being apparently so much relied upon, it was but natural for me to adopt it.

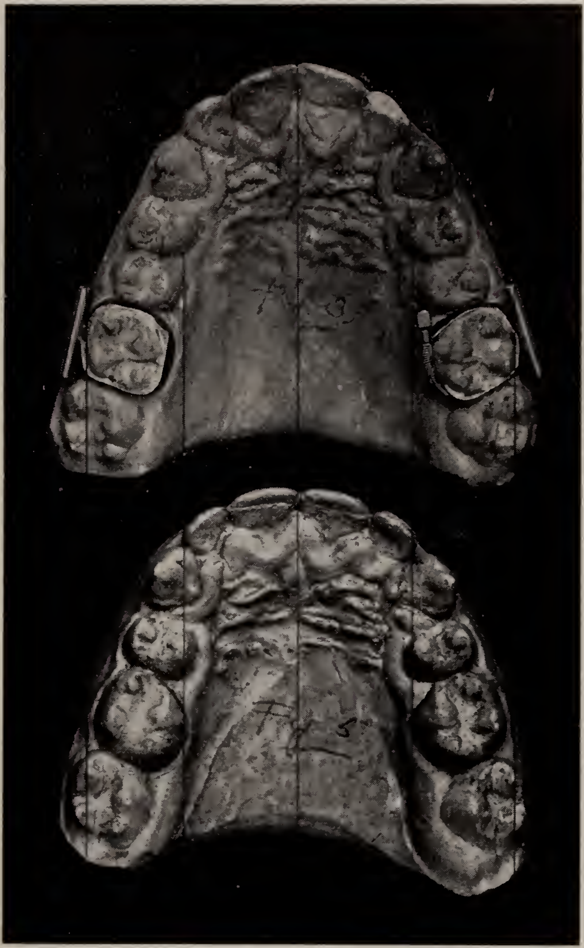

FIG. 2.

The first upper bicuspids were therefore extracted and the appliance in question put on.

For awhile everything appeared to progress smoothly, and

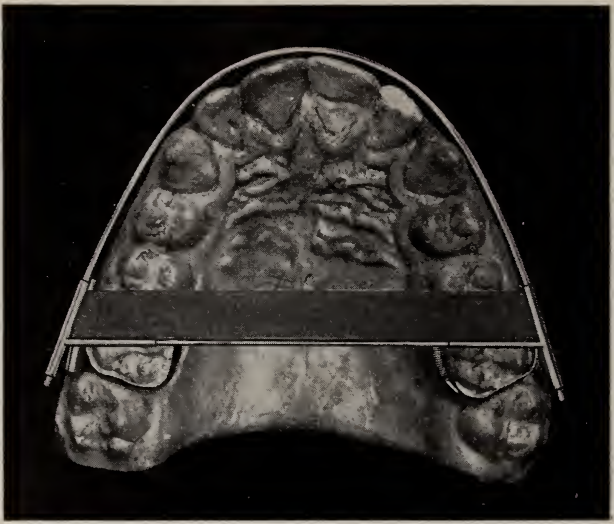

FIG. 3.

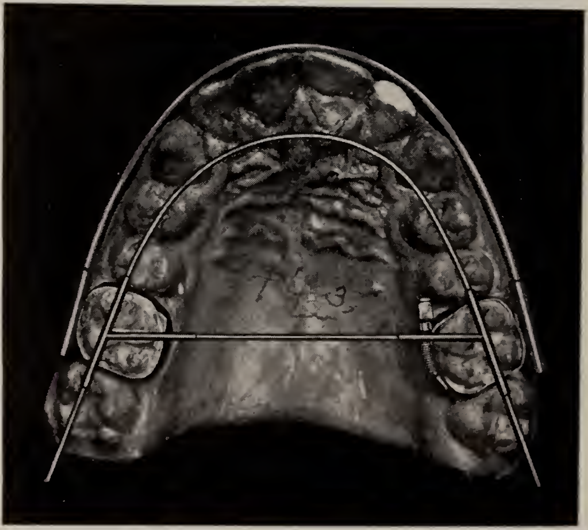

FIG. 4.

the teeth were being duly retracted, when suddenly I discovered that something was happening that was not upon the program.

Upon taking an impression, and examining the cast, it was at once seen that the posterior teeth had been forced inwardly.

I now present photographs of the case as it presented, and before the bicuspids were extracted, and also at this stage of the work.

The parallel lines show graphically the contraction of the arch. While the outer lines barely touch the outer edges of the first molars in the upper picture, they clear them by quite a space in the lower one, thus showing the movement of these teeth.

So the second lines mark the original and present outlines of the bicuspids, clearly showing how these teeth have been moved.

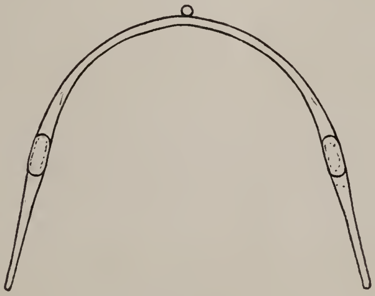

FIG. 5.

As a matter of fact the contraction of the arch is about three thirty-seconds of an inch between the bicuspids, and a full one-eighth of an inch between the first molars.

When I state that the movement of these teeth was unexpected, I feel warranted in the statement because I had never used the appliance before, nor seen in any writings upon the subject such a possibility referred to.

But now a glance at the case and the nature of the arch bar used is sufficient to satisfy me that no other result could be expected with the use of this Angle arch. With it the banded molars *must* move inwardly as the interior teeth are retracted, or there can be no posterior movement of these teeth. No other result can ensue, and with this large model of the appliance I am confident that I can demonstrate this to your entire satisfaction.

Placed in position on the molars are the guide tubes fixed immovably upon this board. Placing the Angle arch in position and pressing it backward (just as the cap and bands would do) produces no result whatever. With fixed guide tubes no amount of pressure upon the arch bar will force it and the interior teeth back.

Now upon loosening these tubes and therefore arranging for their yielding upon pressure, as is the case in practice, slight pressure upon the arch readily forces it backward and just in proportion to this movement are the banded molars forced inwardly, carrying the bicuspids with them.

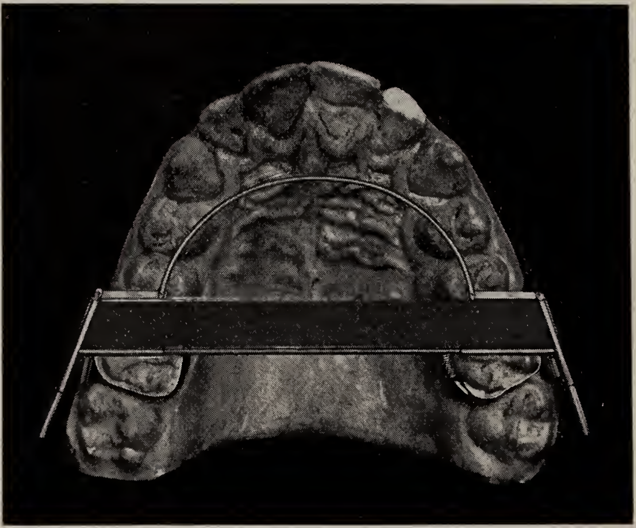

FIG. 6.

I can but believe that this practical demonstration will convince the most skeptical.

Once this very undesirable state of affairs was realized and the cause discovered, the solution of the problem was instantly conceived.

An arch bar was made like the model now shown you, with a double hinged joint opposite the cuspids.

To demonstrate the adaptability for the accomplishment of the desired end we will again secure the tubes rigidly to the board, and for immediate comparison again test the angle arch, demonstrating clearly its inability to move.

Replacing this by the new arch, it is seen that the backward movement, impossible with the rigid arch, is readily accomplished.

With this arch the retraction of the anterior teeth was satisfactorily completed without further disturbance of the posterior teeth.

PERSONAL CARE OF THE MOUTH.*

BY JOSEPH W. WASSALL, M. D., D. D. S., CHICAGO, ILL.

Naturalists have distinguished man from the rest of creation, according to his various attributes, as "a two-legged animal without feathers," as "a two-legged animal who uses tools," as "a reasoning animal" and as "a cooking animal." His designation as "a cooking animal" would seem the most appropriate from the standpoint in which we view him to-night. All the ills to which the human denture is heir are directly traceable to that great epoch in his evolution which was marked by the discovery of an easy method of kindling a fire for the preparation of food. Modern man leads an artificial life. Anthropology teaches that nature intended *genus homo* should live in the wilderness; should spend sixteen in twenty-four hours out of shelter; that he should subsist on a coarse diet—the uncooked flesh of wild animals, or upon the uncultivated products of the soil. The skulls of prehistoric savage people which are preserved to this day, show that the teeth, under such conditions of life, were not subject to loss by disease. The teeth of wild men who survived to old age, wore out. A fair estimate of the loss of tooth substance by abrasion of mastication, which should have occurred at the age of thirty years, would be one-third of the crown—i. e., the entire cusps and sulci of the molars and bicuspids should have disappeared, with a corresponding pulp calcification, leaving the teeth to present their greatest areas of masticating surface in the prime of life, when the needs of the body are the greatest. At the same time a progressive recession of the gums has been going on, so that the teeth stand out always at their required length. In the collection of crania made by Dr. Dorsey, and now at the Field Columbian Museum, Chicago, may be seen four skulls which admirably exemplify tooth abrasion at different ages.

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*Read before the Chicago Dental Society.

Instead of this normal wear, what conditions do we find in modern man? We see people every day, aged between thirty-five and fifty, who show scarcely any perceptible wear of the occlusal surfaces. The crowns are, therefore, abnormally long, and, furthermore, at this period of life there has occurred a normal recession of the gums. The malocclusion resultant from insufficient wear, as well as the greater leverage exerted upon the alveolus by the elongated crowns causes a slight loosening of the teeth, which frequently arouses fears in the minds of individuals lest the process will go on until the teeth are lost. In such cases it is only necessary to explain that the process is a perfectly natural and normal one. The duration of the teeth is not necessarily threatened, as at this age all the tissues have grown more dense.

If the mouth of a healthy dog be examined, the teeth will be found absolutely clean, and the gums in a condition of grisly hardness. You know already that this freedom from caries and loosening of the teeth is due solely to a diet which enforces upon the dog vigorous mastication. In other words, the laws of nature being conformed to, the parts are free from disease.

You are all well aware of the train of diseases which attack the mouth and teeth of the dog, cat, horse, cow and other domesticated animals when fed for any length of time on food which permits of even a slight deviation from what might be termed the normal amount of attrition.[1] It is unnecessary to dwell upon facts so well known.

I claim that the human mouth should show analogous conditions to the mouth of the healthy dog. How is this condition to be attained and maintained? Of course, it stands to reason that at this late day we cannot advocate a return to the diet of a savage. The blessings of civilization are too apparent. That an approximate state to that described may be established, I am convinced. It may be accomplished by a forced substitute for mastication of coarse food, namely, the regular and strenuous use of hard-bristled brushes. The brushes should be made of the stiffest bristles which can be had. Very few brushes are sold which are fit for the purpose for which they were made. The brush known by dealers as "hard" is only suitable to help bring the gums up to a point where *extra* hard brushes can be employed.

After "hard" brushes, so-called, can be used without distress, the patient may be put upon *extra hard, unbleached bristle brushes.*

My method of training a patient to bring the gums to a physiological toughness may be best given, perhaps, by a hypothetical case. Suppose we have for a patient an intelligent woman, aged thirty. We first examine the mouth. The case is an average one. We note on a diagram the location of ten approximal decays, three pyorrhea pockets (unknown to patient), two loose teeth, two overhanging margins of old fillings, redness of gum margin on unused side of mouth and a line of sordes of bacterial origin at the necks. Deposits of calculus inside all the lower teeth. The gums bleed easily, and, as is usual in such cases, the patient tells us she uses a soft brush and dentifrice once a day only.

We will now begin the training of our patient by placing a mirror in her hand and showing her the condition of the gums and the location of the hard and soft deposits. You will then show her the region of the upper left cuspid, where we will suppose the tissue is tough, non-sensitive and the tooth perfect. You will explain that, with her co-operation, it is possible to establish such conditions about all the teeth. You will enumerate then the benefits to accrue, which will be easily made obvious.

The teeth are now scaled, polished and, with another recourse to the mirror, the result shown to the patient.

We now describe a definite regime for the personal care of her mouth. A positive manner should be used and insistence on a rigid observance of the rules. Upon this your success or failure depends. The directions, with reasons therefor, are as follows:

Have always in use four extra-hard tooth brushes, to be used alternately, because the employment of one only means its rapid softening by becoming water-soaked, defeating the object we aim to accomplish.

The brush, with a dentifrice, should be used at bedtime and in the morning, on arising. The brush should be applied vigorously and thoroughly for four minutes at each cleansing. This, you will observe, is twice a day only. We are particular to say the brush must be used no oftener and at no other time.

Hard and fast rules are the only effective ones in this work. If discretion is allowed, the patient quickly grows lax and quite unconsciously. The cleaning is to be done on arising, not at an hour later; and on retiring, not just before or after dining. If the teeth are properly cleansed on arising, they are freed from glutinous products of bacterial origin which have vegetated during sleep, and the food which is taken during the day is then not likely to adhere to them. What food does lodge in the interdental spaces may be dislodged by pick or floss. Any particles which remain do no harm where they are for the few hours until the bed time cleansing, because the activities of the mouth during the day will hinder, if not entirely check, the growth of micro-örganisms. The bed-time cleansing will, as far as possible, remove fermentable matters from the mouth which have accumulated during the day. Brushing with dentifrice may be supplemented with floss and antiseptic and alkaline wash. The dentifrice should be rubbed well over the teeth and gums by the brush, and then the brush should be dipped into cold water repeatedly, until all the dentifrice has been brushed out of the mouth, and then continued somewhat longer. Stress is laid on the need of brushing the gums vigorously, as well as the teeth. If the gums are well brushed, the teeth will take care of themselves. The brushes may cause bleeding and develop sore spots on the mucous membrane for a few days, but a persistent brushing of the tender or bleeding places will soon harden and cure them. Lay down a rule that wherever the gums bleed or feel tender, there the brush is to be applied harder. The friction of the hardest brush will, in time become a pleasant sensation, and, indeed, an indispensable one. We may further explain that obstinate cases require patient perseverance and a Spartan courage, but it is surprising how quickly and kindly even aggravated conditions yield to what the patient may consider violent friction.

The brush cleanses, but used in the manner here advocated, it has a far more valuable office in supplying the physiological needs of the gingival tissue, without which it cannot be normal.

The patient may now be dismissed, with strict injunctions to begin the new method that very night. The other appointments which are to follow will give you the ofttime needed opportunity to reiterate directions and give encouragement. If you have been successful in creating and establishing the new conditions we have pictured, you will deem it the greatest service it is possible for you to render in your professional capacity.

Persons who show the most destructive conditions to exist in their mouths are frequently the ones who are apparently most fastidious in their oral hygiene, even using the brush five or six times in the day, but a careful examination of the teeth surfaces and the gums will show that the tissues really receive a slight modicum of friction. The application of the method under discussion to such cases will furnish abundant proof that five or six brushings per day in the ordinary way is taking the very worst possible care of the mouth.

In this connection it may be in order to say something in regard to the various proprietary nostrums which the public so largely uses and which are usually designated by the terminals "ines," "ols," etc., etc. Apart from their very frequent injurious acid reaction, the habit of using such washes is harmful, because people are inclined to substitute them for a powder dentifrice or to even give up all brushing. The tendency under their use is to rely on their alleged antiseptic qualities, and hence to be less and less thorough with the brushing. So far as my observation goes, these washes are an unmitigated curse, except when used after and as an adjunct to a dentifrice.

In closing, I may, under the circumstances, be excused for repeating what I quoted in a former paper from the pen of the late Dr. George H. Cushing, viz.: "That if it was possible to keep the teeth absolutely clean, there could be no dental caries." We might add that the proper amount of friction upon the gums, either from mastication or artificially applied, would put an end to the ravages of that other enemy to the human teeth, namely, pyorrhea alveolaris.

GUTTA-PERCHA OR SANDARAC.*

BY DR. J. H. WOOLLEY, CHICAGO, ILL.

We have been led to believe that gutta-percha is a material answering all the requirements of a root-filling, because of its indestructibility and compatibility with the tooth structure. Within a recent period a new material, to be added to the old, has been offered to the dental practitioner, and seems in a few cases to be securing the approval of the profession. As regards the claims made for this preparation, sandarac, they do not seem to me sufficiently well founded to gain our entire confidence. I especially question that of durability. Comparing the filling made with gutta-percha alone and that composed of the new mixture with sandarac, we need to know the nature and chemical combination of these materials, after which we can determine this question of durability and other points.

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*Read before the Odontological Society of Chicago.

Let us first examine gutta-percha. Its chemical formula is as follows:

Gutta, $C_{20}H_{32}O$ 80 per cent; fluavil, $C_{20}H_{32}$; albane, C_2 $H_{32}O_2$.

It is not solvent in water and cannot be oxidized.

Sandarac is made up of three resins, one of which contains a bitter principle, and it is soluble in water. This has been well proved by laboratory experiments upon watch crystals. I read a letter from Mr. A. D. Thorburn, a professional chemist, who has assisted me in this line of investigation.

Chicago, Ill., Feb. 3, 1900.

Dr. J. H. Woolley,
1111 Reliance Building, City.

Dear Doctor:—I have the pleasure of reporting that the experiments showing the action of water on sandarac made at your request have resulted as follows:

Ten grams of sandarac were suspended in 100 cubic centimeters of distilled water at about 20° C. for three (3) days.

5.050 grams of the solution were filtered into a tared watchglass and evaporated; the residue, cooled, weighed .007 grams.

Five grams of sandarac were suspended in 100 cubic centimeters of distilled water at about 35° C. for two (2) days.

5.752 grams of the solution were filtered into a tared watchglass and evaporated; the residue, cooled, weighed .008 grams.

Five grams of sandarac were suspended in 100 cubic centimeters of distilled water at about 35° C. for two (2) days.

5.022 grams were filtered into a tared watchglass and evaporated at about 60° C.; the residue, cooled, weighed .007 grams.

These results would indicate that about seven hundred parts of water would dissolve out one part by weight from sandarac, under the conditions given. Marsch reports sandarac to contain three resins and a bitter principle sparingly soluble in water. There is a distinct taste to sandarac, showing the solubility of the principle in the fluids of the mouth. The resins are easily changed by chemical reagents, absorbing hydroxyl and becoming acids. The practical value of these facts can be determined only by experience, but the results are submitted with the hope of suggesting other experiments bearing directly on the subjects in which you are interested.

Yours truly,

A. D. THORBURN.

As I apply the results of these experiments to the question of the best root fillings, it seems to me that the old method is the safest and most permanent. When a pulp canal is properly filled with gutta-percha it is hermetically sealed throughout the entire length. On the contrary, in the filling made with gutta-percha and sandarac varnish, the latter is made to flow into the canal until it is filled, the next procedure being to follow with gutta-percha cones which are forced to the end of the canal. The question I raise and leave with you to discuss and settle as you think best, is, what becomes of this lining of varnish? Does it remain there permanently, or is it disintegrated by the natural moisture in the dental tubules; does it disappear, leaving an open space, in which microörganisms can find an easy habitat?

DENTAL SERVICES IN STATE INSTITUTIONS.*

BY DR. J. W. PUCKETT, OF GENEVA, NEB.

In continuing this subject I have been somewhat handicapped this year in not being able to visit any of the State institutions, as the Industrial School for Girls at Geneva is the only one within my reach, and the superintendent, B. R. B. Weber, has without any laudable reason absolutely refused to allow a dentist to examine any of the mouths of the inmates, so what little data I have gathered by correspondence I will give.

I have corresponded with all the states in the union and find that Iowa is the only one that ever has made an appropriation, and she only on one or two occasions, and only intended to reach two institutions, College for the Blind, and the Soldiers' and Orphans' Home. In these two cases the fund was never used, so making it practically inactive.

They also state that a dentist is employed by the State by the month at the institution for feeble minded children at Glenwood.

In other institutions of Iowa they are on a par with us.

Illinois also reports that some of their institutions retain in their service a regularly qualified dentist.

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*This paper is a continuation of the one published in August, 1899.

All other states so far as I have been able to learn have no arrangements, and the matter of dental services is left entirely with the superintendents, and is to be paid out of the general fund.

Some say they have ample fund for anything of the kind that the directors see fit to use it for, so it would rest entirely with them whether the inmates are furnished with the necessary dental services or neglected.

Whether they even have a dentist to do their extracting or have the physician in charge do it.

Dr. John W. Ward, of Trenton, N. J., State Medical Director, says: "I am heartily in accord, and have been for a long time past, with the idea of having a dentist visit the institutions regularly, and examine the teeth of individuals under care in the institutions.

"This has not been done because there is no appropriation made to meet the expense of such an arrangement.

"As you state in your paper, a good deal of irritability no doubt exists, due to the bad condition of the teeth, and many sleepless nights are past that might be obviated by proper attention to the teeth."

I am indebted to Dr. E. A. Meservey, of Kearney, for the following: In examing a class of twenty-three boys, average age fifteen years, inmates of the Reform School of that place, he reports: decayed teeth, 26; broken off, 9.

This class taken as an average example would show in the institution decayed teeth 182, broken off 63.

Superintendent C. W. Hoxie also tells me that the total number of teeth extracted in the school the past year is about 250, the majority of which should have been saved.

No doubt this would be a fair basis to estimate our girls' school, which would be 67 teeth decayed, 25 broken off, and 94 extracted the past year, making a total in both schools of 220 inmates, with 249 decayed teeth, 88 broken off, and losing an average of 344 teeth each year.

Think what these girls and boys are losing, an average of one tooth each, every eight months, all of which should be saved.

Now, we have 2,630 inmates of our State institutions, and just think of the value of the teeth they are losing each year.

Can you put a cash value on it? Is it not worth our while to ask the legislature to pass a bill which would remedy this wrong?

Would it not be a wise plan for this society to appoint a committee to prepare a bill and bring before the society next year to be endorsed or amended by that body, and then presented to the legislature?

We are a prosperous and progressive people and why not take the lead in this matter and set an example for some of our older States.

A FEW FACTS IN DENTAL HISTORY.*

BY A. J. REDERICH, D. D. S., SIOUX CITY, IOWA.

I propose for your consideration this evening a few thoughts on organized efforts, briefly, but not chronologically, alluding to the earliest societies and those that followed, until a time within the memory of those now living, purposely leaving out the names of men prominent in the field of prosthetic and operative dentistry, as justice could not be done them in a paper as brief as this.

Societies are the outgrowth of that inborn desire in man's nature to associate with his kind. It is inherent in him; he is gregarious in his habits, and when he associates with his fellows he only follows a natural law of his being, therefore societies have their origin with the beginning of man. As far back in the dim past as his achievements are preserved to us, whether cut in granite, or bronze, or written on papyrus of ancient Egypt, we have mention (fragmentary, it is true) of his social nature. We find societies then as numerous in Rome and Greece before the Christian era as they are at the end of the nineteenth century with us. You can parallel the guilds of these times with the trade's unions of to-day; their ethics and codes would compare very favorably with ours; they had the same object in view. In fraternal societies men associated together for common interests, whether business, pleasure, or mental improvement. Religious, benevolent, scientific, secular societies, or crafts, the motives then, as now, were the same. Could we transplant to our shores (and turn back the dial of the centuries) any of their mercantile, or laboring class societies, with their particular symbols, paraphanalia, society laws and creeds, we would marvel at them for being so much like our own. As the Roman empire extended over what is now called Europe, similar conditions prevailed, which lasted for centuries, until blighted in that undefinable epoch or time called the *Dark Ages*, when a kind of stupor spread over the people, stagnated their intellectual faculties, resulting in a deplorable state of ignorance and retrogression. The feudal lords, and especially the iron grip of the church, were responsible in a great measure for this servile condition. When men were burned at the stake and cast into dungeons, because they had the audacity to express their opinions; when scholars or scientists who made known their theories were hooted and called heretics, when such men as Galileo were banished for asserting the laws that governed the motions of our earth and sun as being in conflict with the scriptural belief of that day, these facts show conclusively what power the church wielded. This state of intolerance continued until we arrived at that period when men began to think and reason, and break away from the old order of things. The renaissance, or that movement of the " European intellect and will toward self-emancipation, toward reasserting of the natural right of the reason and senses." From that time on man asserted and demanded his rights, the church lost its grip, literature flourished, its theater was in Italy and Spain, and Rome its conspicuous center. Northward, in France and Germany, and later in England, we have its stimulating influences in architecture, painting, literature, and revival of the classics, also the minor arts of enameling, glass painting, goldsmith's work, jewelry, pottery, tapestry, wood carving. All felt the artistic impulse. The drama in England was represented by Shakespeare, science by Bacon and Spencer, poetry by Milton, products of the renaissance, while France in literature produced her De Commines, Vilons, Regnieres, Voltaires, and last as worthy to stand by Shakespeare and Bacon, Rabelais, and Germany had her Luther, conspicuous in the Reformation. These intellectual products of those days were working in the field of literature, chiefly in enriching the language, the prose and poetry of their respective countries. The masses felt the inspiration, looked upon life not as did their fathers, who dreaded the consequences of departing from the strict rules proscribed by the church and its massive vengence, but as worth the living. They interrogated nature in the right manner, and cleared the rubbish of superstition, paving the way for the mind to occupy itself with other things than dogmas and creeds. The era for scientific research was now at hand. Briefly passing over the years of preparation before real organized effort obtained, we can safely say that little was accomplished before the middle of the eighteenth century in what is denominated the sciences. To the nineteenth century we are indebted for organized scientific societies, when they published their proceedings. It was at this time we had societies such as those of Medicine, Geography, Chemistry, Zoology, Anthropology, Paleontology, Meteorology, Mineralogy, Geology, and others, and yet no dental societies. The scientific societies did not belong to the times we have been alluding to; they are of comparatively recent growth. Since the rapid strides of science dates back less than four-score years, its most rapid advance has been in the last fifty, so that it brought forth a class of men that did not, or could not occupy the field a hundred years before. The time was not ripe for the microscopist, the electrician or engineer, so we find scientific associations springing up shortly after a field is open for them, not before. What was the status of dentistry four-score years ago? This brings us to the period in which you are particularly interested. There were no dental societies then. Dentistry, as we term this branch of medicine, did not exist; here and there some sickly attempt had been made at filling teeth and carving out artificial substitutes, extractions performed by surgeons and barbers, implements which were crude, the turnkey was patterned after the canthook of the log roller, artificial teeth made by cutting them out of elephant's tusks, or that of the walrus or hippopotamus, fastened with wire, or riveted to metallic bands; a kind of ancient bridge work. The spirit of the times, the rapid strides of the sciences in all other directions, had its influence on this branch of the healing art as it had on that of medicine and surgery. The first dentist to practice in the United States was an Englishman, by the name of John Woffendale. He practiced both in New York and Philadelphia, from 1766 to 1768. Next, a Frenchman, Joseph Lemaire, who came during the revolutionary war; in 1784, one Whitelock figured; later, Isaac Greenwood established himself in Boston. His son, John Greenwood, was the first American dentist. He began the practice in New York in 1788. This was the man that made a full set of teeth for George Washington. There were about one hundred dentists in this country at that time, including foreign and native practitioners. In 1830, they numbered about three hundred; in 1840, about twelve hundred; in 1860, about five thousand. About 1850, no dental society worthy of the name existed in the United States, and much later in England. Now every State has its State society, every town of any size its local association, there being more than one hundred at this date. The oldest dental college in this country, the Baltimore College of Dental Surgery, was chartered in 1839. It had a clear field all to itself until the Ohio Dental College obtained its charter six years afterward, in 1845. These two furnished all the collegiate dental education up to 1850, when the Pennsylvania College of Dental Surgery received its charter. During the dark days of the civil war, at its very beginning, the Philadelphia Dental College was launched, followed by rapid accessions, so that up to the present time the colleges number about fifty. From the time the first practitioner of dentistry appeared on the scene until there was a society, it has taken eighty-four years; before a dental college existed, seventy-three. Can we form an idea of the status of the profession at that time? Can you imagine what the surroundings of the dental parlors looked like, when men were uncommunicative, kept their secrets to themselves? Who can picture the envy, malice, the forbidding scowl when these practitioners' offices were guarded enclosures, lest some little wrinkle or device possessed should escape and find its way into the hands of competitors? This petty narrow-mindedness we are glad to say was not followed by all; there were noble and generous spirits, brainy men, hard workers, delving deep, trying to solve chemical problems that have never been solved. How to produce out of silex, kaolin, feldspar and the various fluxes an indestructible artificial tooth. This was one of them. The French dentists were the first to produce the porcelain tooth; they were an inferior imitation; they were brought to their present state of perfection by American dentists. To Dr. Wildman, more than any other living man, we are indebted for the results. He it was who brought forth from experiments begun as early as 1837 the minerals and oxides that gave them their color, expression and lifelike appearance, the S. S. White Co. to-day using the identical formula that he discovered to give that fleshlike tint to the gums, purple of cassius. This was his discovery entirely. He also made more experiments in the line of vulcanite as adapted to dentistry than anyone else. I have been in his laboratory at Philadelphia, in 1869, while attending his lectures. This room was a mass of specimens of the ceramic art, also of vulcanite—all labeled, tabulated, bottled, boxed, in all imaginable shapes, with furnaces, muffles, vulcanizers, acids and alkalies—a perfect museum of research. The suction, or air chamber plate, was the invention of Chapin A. Harris, of Baltimore, produced as early as 1835. Considered of the greatest merit, it has run through various shapes; placed in different positions on the plate surface, is used by nearly every dentist to-day, even if it is only a piece of heavy tinfoil to relieve the bearing in the center of the arch to distribute pressure on the alveoli, it is still the Harris principle of suction. The teeth were attached to the plate by means of rivets through the tooth, being first applied to human teeth, afterwards to those made of ivory and the teeth of animals. With the advent of porcelain teeth came the insertion of the platinum pin, inserted in the tooth before being baked. This was the invention of an American dentist, and revolutionized the manufacture of teeth. Gold and silver plate being the only kind in vogue at this period, when the cheoplastic and rubber plate made their appearance. Dr. Livermore, of Galena, Ill., with whom I studied, was the inventor of a cast gold plate, his process being in some respects similar to that of the cheoplastic plate. Taking a correct impression of the mouth, he made a model of two parts plaster and four of sand, on which he carefully burnished tea lead the thickness he desired the plate, the teeth were ground, articulated and fitted, then attached with wax and flasked with the same proportion of sand and plaster, the flask being a peculiar contrivance of cast-iron held together by bolts, with an iron strap, to which was added a detachable handle; after opening the flask, taking out all wax and lead, it was again fastened together, put in a furnace and carefully brought to a dull red heat, at the same time a crucible containing the gold in a molten condition being ready; this was poured into the opening of the flask, the whole being then left in the coals until perfectly cold. This made a beautiful plate. I describe this mode thus minutely because I think it never has been given to the profession or mentioned in any work on mechanical dentistry. The plate workers of those days were experts; many of them served an apprenticeship with the goldsmiths or jewelers, a practice that could be very profitably followed at the present time. In 1855, vulcanite or rubber made its appearance. It was in that year that a patent was obtained, first mentioning rubber as a base for dentures; from that date mechanical dentistry received a blow from which it never recovered. The other branch of dentistry developed fully as rapidly and received a wonderful impetus with the advent of the rubber dam and mallet. I remember distinctly the days of mouth napkins, tongue holders, files and chisels. The discussion on how best to apply the napkins and duct compressors to keep the cavities from being flooded, were numerous. The younger members, the practitioners of to-day, can form no idea of the perplexities, and anxieties which were the lot of those who practiced before 1865 when filling large approximal cavities, all of which has been simplified by that great gift of Barnum, the rubber dam. He asked no royalty—he gave it as a free offering. We should not forget to uncover our heads when we mention the name of Dr. W. T. G. Morton and Dr. Horace Wells. Wells demonstrated that extracting teeth could be painless by the use of nitrous oxide; Morton robbed surgery of its terrors, made amputations painless with sulphuric ether. This great boon to humanity dates back to 1844 and 1846, respectively. Both these men were American dentists; one practiced in Hartford, Conn., the other in Boston. To deliberately apply a drug as sulphuric ether for the first time, benumb, paralyze a patient to the extent of complete insensibility to pain, and continue until an operation is performed, required an amount of courage, nerve and boldness bordering on audacity. Had he been a less courageous man, this great discovery might have been delayed perhaps for another generation, and its untold blessings withheld. The scalpel and saw still inflicting its cruelties and tortures necessary for the relief of the afflicted. It is almost impossible to estimate the value of this discovery. "It is probable," says Lecky, (History of European Morals), "that the American invention of the first anesthetic has done more for the real happiness of mankind than all the moral philosophers from Socrates to Mills." *Their statues in bronze should stand in the portals of all the leading medical and dental colleges in the land.* Surgery, when robbed of its terrors, at once took rapid strides as if by leaps and bounds; operations were performed that were not dreamed of a few years before.

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*Read before the Sioux City Dental Association.

To mention the numerous devices, inventions, appliances and improvements in materials and methods of manipulation, would require more time than can be given in a paper like this. We have only attempted to show that the profession of dentistry has been, and is, a progressive one; that prior to the year 1800 it was unborn; it was still in it's swaddling clothes in 1845, but from that time on rapid progress has been made. We have seen that the American dentist stands in the front ranks in ability, skill, and genius for invention. We can also infer that our greatest strides date back to the time of our own dental associations and colleges; that we have a literature and text books comparing favorably with that of the medical profession, so that we are able to stand on firm ground, recognized as a profession. To the younger men in this society, let me congratulate you in the steps you have taken in enrolling your names as members of the Sioux City Dental Association. If you will use your best efforts, labor conscientiously in this, your chosen field of action, you can fully occupy your spare time in the work that is before you. What work you have outlined for your future deliberations, I am not informed. It is not my object to be inquisitive. If the question were asked, "what topics should this Association concern itself with at the outset," it seems a fairly satisfactory reply would be, " Discuss those subjects that are presenting themselves every day in your practice, those on which you and your patient are vitally interested, filling teeth, treating exposed pulps. Alveolar abscess, extractions, salivary calculus, inflammation of the mucous membrane, the care of children's teeth, crown, plate and bridge work. regulations, condition of the saliva as causes of caries, especially in pregnancy, the cervical border, or margin of all cavities, especially the bicuspids or molars, anesthetics, general and local, dental hygiene, best material for fillings in certain conditions, arsenic in destroying pulps, blind abscesses, etc., etc." You could also have a question box, where any member wishing light on any particular point could do so and not be known in the transaction; also a blackboard for drawings to which you could refer to in your discussions. Do you say these are old topics, back numbers? We have got all this at college. Let me ask some of you the proper way to treat a blind abscess, a positive way to cap an exposed pulp, a sure way to prevent recurring decay in deep-seated cavities, in chalky approximal bicuspids, or to put a permanent filling there? A subject of the most vital importance could be taken up by this society, namely, the relation of microörganisms to caries. This has occupied the attention of both German and American bacteriologists for years; they have succeeded by cultures in reproducing them out of the mouth, demonstrating beyond doubt the active part they play in producing caries and shown most invariably that they thrive in an acid menstrum, in fact, producing it. German bacteriologists leading in this field of thought. They have discovered nearly one hundred species, from the leptothrix bacillus, found in decayed dentine, to the bacilli of diphtheria and tuberculosis. Remedies suggested to counteract their ravages, which have been partially successful, the destruction of teeth in pregnancy so commonly noticed, should receive your careful consideration. That these microörganisms, the extra demand on the lime constituents of the blood and system are active causes, seem no doubt the case. Perhaps assimilation another factor. Find out the cause and the proper treatment, stay the destruction. Can you accomplish this, you deserve the gratitude of your race. So with the other questions enumerated, papers could be prepared and discussed, a vast amount of study would be the result, which would amply repay in thoroughly understanding the subject, as you will find that to write a paper on any of these requires thought and systematic research, while continued practice will make what was a task a pleasure. To the younger members of this society, let me say again I congratulate you on the auspicious times you begin your career. There is much that is settled; you have before you the experience of the past which is contained in the tomes accessible to all of you; the great works of Harris, Taft, Garretson, and others, contain vast funds of information, also the trials and tribulations of the pioneers of the profession. Hoping that if this paper falls short of your expectations, as it has with me, there may be some suggestion worthy of your consideration.

EXTRACTION OF TEETH, TEMPORARY AND PERMANENT.*

By W. CLYDE DAVIS, M. D., D. D. S., LINCOLN, NEB.

No other surgical operation upon the human organism is of such frequent occurrence as the extraction of teeth, greatly as the loss of these organs is to be deplored. Probably nine out of ten physicians as well as dentists, when they begin to practice the healing art (either in a general sense or as a specialty), have for their first patients those suffering from odontolgia and demanding the extraction of one or more teeth. In their lack of knowledge on the subject they believe this to be the only road to comfort. However, as in the case of major operations, the surgeon must use his own judgment, based upon knowledge of the various means of giving relief, and the lasting effect produced by the extraction of teeth, as to the advisability of proceeding with the operation at the request of the patient. Yet that such an operation is at times necessary cannot be questioned.

It is the province of this paper to treat this subject from a surgical standpoint, hoping that no practitioner or student of oral surgery will forget that the loss of a member of the masticating organs cannot be sustained without permanent injury. One rule, if strictly adhered to, will safely answer the question as to whether or no a tooth should be extracted, namely: When a tooth or part thereof can be made of no further use to the patient, or when its retention cannot be accomplished with comfort to the patient, it should be extracted.

The latter part of this rule is more far-reaching when applied by the dental surgeon than by the physician; for with more instruments and with a knowledge of subsequent operations that may be performed upon the teeth, he is able to put in a comfortable condition many teeth which a physician would be compelled to extract. Therefore as we view the subject from different standpoints, our interpretation of the latter part of this rule will be different; and in each individual case should mean when it is beyond the power of the operator to make the patient comfortable.

I believe the matter of instruments to be a personal one with each individual operator. There are large collections of instruments of different varieties, manufactured by many different houses, nearly all of which have merit. Each operator should select those with which he is most successful. Our forefathers used the never-to-be forgotten turnkey and we are told that some of them were very dextrous in the use of this now antiquated instrument. I believe we can learn a lesson from this. That one should secure a carefully selected set of say, eight or ten pairs of forceps and by the study of the particular use of each, one will become more dextrous in this operation than if he attempts to master a larger number of forceps, unless his practice be an extensive one.

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*Read before the Nebraska State Dental Society.

Personally, I use what is known as Dr. Hunt's set, which includes eight pairs. To these I have added, two from Dr. Harris' set. Even with this limited number, I find that I extract nearly all of the teeth presented with two pairs out of these.

EXTRACTION OF DECIDUOUS TEETH.

The operation of extracting a deciduous tooth requires so little force and is generally attended with so slight an injury, that there is need of but little preparation; except, perhaps, obtaining the confidence of our little patients; at the same time making them no false promises not to hurt them, which will only shake their confidence in our veracity. Always tell them the truth; that the operation will probably cause some pain.

Appeal to their bravery, complimenting them upon any exhibition of same, thus gaining their confidence for future occasions. Most of the timidity exhibited by children and their willful resistance to coming under the care of a dentist is due to talk and treatment by parents at home. It is necessary to get the child entirely away from these influences in order to be successful in gaining its confidence.

The extraction of temporary teeth at the proper time and under normal conditions is not a difficult operation, owing to the amount of physiological absorption of both the alveolar process and the roots of the teeth.

The most important thing connected with their extraction is an accurate knowledge of the order in which nature proposes to replace them with the permanent set. In no instance will nature tolerate any interruption of or interference with this order without showing marked displeasure by subsequent irregularities in the permanent teeth.

The premature or tardy extraction of temporary teeth has much to do with irregular and unsightly permanent teeth, therefore it is well to make a careful study of the order in which the temporary set is erupted, comparing this with the order in which it is subsequently replaced by the permanent set, noting the difference and studying the reason for the change.

By looking at chart No. 1* you will see the order in which the temporary set should erupt indicated by figures. This drawing also includes the first permanent molar. Just anterior to this you will notice the dotted line marked "A," to which I wish to call your attention.

Nature, in giving us this permanent tooth at the age of six years and locating it just at this particular point, seems to desire to put in a permanent fixture as a dividing line in the jaw, between the teeth which are to be replaced and that space which is occupied by permanent teeth back of line A.

If by proper extraction and coaching into place of the various teeth in their proper order the position of this line A (which bisects the jaw just at the mesial surface of the first permanent molar), is not allowed to move anteriorly, there is left just the proper space needed by the permanent teeth when they replace the temporary set; provided the maxillary development is not interfered with; also making allowance for the effects of miscegenation and the effects of inheritance of large teeth and small bones, or vice versa.

For instance, if by the premature extracting say of tooth No. 5 (second tem. molar), this first permanent molar is allowed to tip forward, thereby moving line A anteriorly, we have encroached to just that extent upon the space required by the permanent teeth. The irregularity resulting from such a mistake will probably be shown at the cuspid, as that is the last to be replaced.

Again, if the first permanent molar is extracted before the temporary teeth have been replaced, owing to the youth of the patient, Nature seems to realize that further development of the maxillary on this side is not necessary, and the maxillary, whether upper or lower, will generally lack in length to correspond with its antagonist, nearly the width of the tooth extracted. This may not, but probably will show itself in the exhibition of faulty occlusion and irregularities of alignment. A careful study of the features will show a lack of artistic contour. Let us here consider the order in which these temporary teeth are replaced by the permanent set.

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* The chart did not come to the editor.

By referring to Chart 2, in which the order is also indicated by figures, we see that the order differs somewhat from that in which they were erupted.

Nature has wise reasons for the change in order. I wish to emphasize the injury resulting from any interference with it.

You will notice that in the temporary set, the *cuspid* teeth erupt before the molars belonging to the temporary set, while these are replaced by the permanent teeth in a much different order. The *first temporary molar* is replaced by the *first bicuspid.* Next we have the *second bicuspid* coming into place, and then the cuspid, forming the keystone of the arch.

Now the reason for nature's change of this order: At six years we find the full complement of temporary teeth in place, only twenty in number. Here nature puts in this dividing line "A," by putting into place one permanent tooth, the first permanent molar, before she makes any attempt to interfere with the temporary arch already established. When this tooth is fully in place, nature begins her work of replacement.

First come the centrals, then the laterals. If we are to follow the order in which these same temporary teeth were erupted, we should next have the cuspids changed; but not so.

The first temporary molar is lost and replaced by the first bicuspid, which has a space to occupy between two teeth, which should be in position to guide and assist it to proper place, leaving the second temporary molar in position to keep the first permanent molar from encroaching on line A. Then nature replaces the second temporary molar with the second bicuspid.

You will note that the combined width of the temporary molars is greater than that of the bicuspids taking their place; but the cuspid of the permanent set is wider than the temporary cuspid, which should follow quickly into place, wedging back into position against the first permanent molars, the two bicuspids, which replace the temporary molars.

Coming into position just in this order and at this time, it is easily seen how the first permanent molar is kept in its proper place.

At this point the question may arise as to how the permanent laterals and centrals find sufficient room, as they are so much wider than their predecessors. I believe this difference is made up by development of the maxillæ at this age. I have heard it advanced that the difference in the space occupied by these four teeth was compensated for by the bicuspids being smaller than the temporary molars. I think this is an error, for when the four incisor teeth are erupted and in position in almost every instance the temporary cuspid retains its original place with no spaces between the permanent teeth; and when the permanent cuspid comes into position as a wedge it forces back against the six year molar the two bicuspids which have erupted, it being wider than the temporary cuspid.

Having completed the changing of the temporary teeth, Nature will add teeth to the posterior part of the arch without any danger of subsequent irregularities.

I wish to consider some of the evils resulting from a disregard of Nature's order in the extraction of the temporary teeth. For instance, if, as we are frequently requested by patients, we extract lateral incisors before the central incisors have attained nearly their proper height in the process of eruption, either one of two evils may result: The central incisors stand on either side of the symphysis, or where the two segments of the jaw bone unite. In the superior maxillary the central incisors stand on either side of the median line between the intermaxillary bones. If the temporary laterals are extracted before the permanent centrals are fully erupted, and should the maxillary continue proper development, the central incisors will stand apart, as they do not have the lateral incisors to force them toward the median line. Then when the permanent laterals attempt to come into place, their space has been encroached upon and they may fail to crowd the centrals over to the median line, and turning on their axis, present their mesial and distal surface labiolingually. However, in most cases, the bones do not continue proper development and the actual space between the two temporary cuspids, occupied by the four temporary teeth, is not sufficiently increased to contain the permanent incisors. Hence the crowded condition.

If the central incisors do not seem to have sufficient room and we attempt to relieve this condition by extraction of the laterals, the relief is but temporary, as more serious conditions result but a few months later.

After the permanent centrals are erupted, we are justified in extracting the temporary laterals. When the permanent laterals are trying to gain admission to the arch, they may cause the loosening of the temporary cuspids, which by this time have had their roots quite freely absorbed. Patients then request that the cuspids be extracted, their attention being called to the looseness and that the laterals do not seem to have sufficient room. If we extract the cuspid at this point, rest assured that there will not be room enough for the permanent cuspid, when it wishes admission to the arch. We must insist upon the retention of these temporary cuspids until the proper time for extraction; and as the laterals crowd for room, development is taking place all through the bone and especially at the median line.

In the superior jaw the intermaxillary bones materially develop at this age, and, as you know, the temporary cuspid should not be lost until between the eleventh and thirteenth year. So the four incisor teeth alone, centrals and laterals, have allotted to them all the space between the positions occupied by the temporary cuspids and that additional space made by the growth of the bones between the time of their eruption and the loss of the temporary cuspid teeth. Therefore, although there hardly seems to be room enough for the lateral when it erupts, it will have ample space in five years, as it is that long before any teeth in its immediate neighborhood are disturbed.

Nature then skips at this cuspid tooth, which is to hold the incisors in place. Just at this age the second temporary molar may become decayed, and much pain and looseness ensue, from exposure or death of its pulp. Patients will insist upon its extraction; but if by any means the patient can be made comparatively comfortable in the retention of this tooth (either entire or part of its roots), it should not be extracted, as its removal allows the first permanent molar to move forward, caused by the growth and development of the second permanent molar. When the first bicuspid is fully erupted to the line of mastication, we are then justified in removing the second temporary molar to give place to its successor.

However, during the eruption of the first bicuspid the temporary cuspid will very frequently again become loose and possibly hard to retain, and the patient will again insist upon its removal; but in no case should we extract it. We must leave the temporary cuspid in position until all the other temporary teeth have been replaced, and as the keystone of the arch the permanent cuspid will come in and crowd all the teeth into position.

If the order which nature has mapped out has been followed an even set of teeth will result in almost every instance. If the order has been interfered with in the least, the patient's mouth is in such a condition that gross irregularities, faulty occlusion and facial disfigurement is almost certain to result.

EXTRACTION OF PERMANENT TEETH.

Under normal conditions tooth extraction is not a difficult operation. However, there is no oral surgeon of experience who meets with universal success. There are abnormal conditions which render unsuccessful any attempts at removal by ordinary methods; but if the patient be placed under the influence of an anesthetic, the tooth can be removed in its entirety and, if need be, the entire maxillæ with it, yet there is a limit to all operations. There is a time to stop and I believe all dentists have had the same experience; finding cases where the unavoidable injury to the tissues in removing the tooth would be more harmful than allowing a small portion of the tooth to remain. Yet even in normal cases the force must be scientifically and properly applied, or nothing but injury results. If the force is applied in the proper direction, with proper movements, the dislocation of a tooth is an easy matter. The old saying that there is no rule without an exception and that the exception proves the rule, applies to these rules for tooth extraction; for there is probably as much difference in the formation of teeth and the adjacent structures, as in the facial expressien of different people. Therefore, it would be difficult to formulate rules which could be followed literally in all cases.

I believe that the extraction of teeth can be studied on scientific principles and that these principles if properly applied will give better results than extracting teeth merely to get them out. For this reason we must decide what we wish to accomplish and how best to accomplish it. We must consider the various shapes of that part of the tooth which causes its retention in the jaw; also the structure, strength and position of those tissues which hold it in place.

All teeth are divided into three parts, crown, neck and root.

The neck, or constricted portion, serves to retain the tooth firmly in the alveolar process, by the alveolus grasping the tooth at this point, assisted by natural adhesion. By examining the mouth, we see that the alveolar process is just a little thicker or heavier at the neck of the tooth than just above or below it. The mouth, or that part of the alveolus which forms the tooth's socket, once opened, the removal of a normal tooth is made easy. This can only be accomplished by slight, what is termed "green stick" fracture, at this point. How can this be accomplished? By application of force in the line of least resistance. This varies in different teeth, owing to the difference in anatomical structure, the number of roots and direction of eruption.

Three forces are applied in the extraction of a tooth; namely, traction, rotation and pressure. Traction is the pulling force. Rotation is the motion given the hand in using a screw driver, but moving the hand first in one direction then in the opposite. Pressure is the force we would apply to a tooth if trying to push it in or out of the mouth with the finger.

We will now take up the different classes of teeth and try to formulate the rules:

Superior central and lateral incisors: I group these together because of the similarity of their roots and environment.

First traction, as in all teeth, or force applied in the direction of a line drawn through the greatest axis of the tooth.

Next rotation, because these are single-rooted teeth, generally rounded. Also should any adhering portions of the alveolar process be in danger of removal, the rotary motion will loosen that portion from the tooth.

Then comes pressure, invariably labial, because this is the line of least resistance, as the process is much thinner on the labial than on the lingual aspect.

Some of our authorities advocate alternating the pressure so as to exert lingual as well as labial pressure. I cannot understand this, as any pressure lingually upon these teeth produces nothing but increase of pain; for before the tooth can be removed the mouth of the alveolus must be opened, and this can only be accomplished by labial pressure owing to the heavy structures upon the lingual side of the tooth. Therefore, the only change of motion should be of a rotary nature with a slight, steady labial pressure and sufficient traction to remove the tooth upon the slightest fracture or giving of the process.

Inferior central and lateral incisors: Traction in the line of the greatest axis of the tooth.

Rotation, none, or only slight, because these teeth have flat roots with their greatest transverse diameter labio-lingual. Very much twisting or attempts at rotating these four teeth will greatly endanger their slender roots.

Pressure, slightly labial, the process being much thinner on the labial side.

Superior cuspids: Traction, and a considerable amount of it, is sometimes required to remove this tooth, as it is the longest tooth in the mouth. It is generally most firmly seated, and, as a rule, requires more force for its removal than any other tooth.

Slight rotation, especially when the first bicuspid and lateral incisors are in position.

The root of this tooth is not quite so nearly round as that of the incisors, but rotation should be applied to prevent fracture of the adhering process on the labial surface. This rotation tends to peel or scale off any adhering process by bringing it in contact with the firmer portion not disturbed.

Pressure must be steadily labial, as this is in the line of least resistance. By "steadily labial" I do not mean to grasp the tooth and draw it out at right angles with the long axis of the tooth, but that in addition to the great amount of traction necessary and the slight rotation, there should be steadily applied a certain amount of labial pressure upon the process.

There is one case where this rule for the extraction of the superior cuspid may be ignored: When the bicuspid and lateral incisor have just been extracted. In this case, instead of grasping the cuspid labio-lingually, place the beaks of the forceps a short distance up into the cavities caused by the freshly extracted teeth, thus grasping the tooth mesio-distally, give the tooth great traction, also rotation in one direction. This rotation should be so applied that the labial portion of the cuspid would be moved toward the median line. The reason the motion should be applied only in this direction can be found in the fact that the roots of cuspid teeth frequently turn or bend backward as they advance up in the process.

Using traction and rotation in this one direction, the same principle is applied as that which removes a corkscrew from a cork.

Inferior cuspids; traction; slight rotation; buccal pressure. These rules are quite similar to those for *superior* cuspids, adding only that owing to the curve sometimes found in its single root it is well to direct the line of traction force a little backward of the line parallel with the greatest length of the tooth.

Superior bicuspids; principally traction. Owing to the small size of the roots in both bicuspids, and especially the first, whose root is frequently bifurcated, or perhaps two slender, distinct roots, other forces must be sparingly used.

Pressure, which is buccal with this tooth, should be slight, not so much because we would endanger the process by great force in this direction, for it is considerably thicker over the bicuspid than over the cuspid roots, but because there is danger of breaking the root just below the mouth of the alveolus or where the roots begin their bifurcation.

With the second superior bicuspid the buccal pressure may be greater, bearing in mind that the roots of these teeth are disproportionately long compared with their size and circumference at the neck.

Inferior bicuspids, principally traction. In applying this force we must bear in mind that the line of the greatest length of the tooth is normally inclined backward, instead of being in all cases at a right angle to the line of occlusion. Therefore the traction must be applied in a direction which would move the tooth, if it were suddenly loosened, toward the first superior molar, or back of where it normally occludes. Minute rotation, for the reason that these are also slender rooted teeth and frequently somewhat curved.

As a rule these teeth are possessed of but one root. The pressure should be buccal. Care must be taken not to endanger the upper teeth when superior bicuspids and molars leave their sockets suddenly, as they sometimes do; for the force of the traction should be applied in the direction which would bring them in contact with the superior teeth.

Superior first and second molars. These are grouped together, as in the case of the bicuspids, on account of similarity in form, position and surrounding parts.

Traction should be applied in the direction of a line drawn from the apex of the palatine root to the central pit upon the occlusial surface.

Rotation, none; as these teeth are possessed of three roots. Any motion in the way of rotation would not loosen the tooth, as one root braces the others. It is therefore advantageous to apply the force in the line of the greatest length of one of these roots; namely, the palatine.

Pressure should be applied steadily, buccal, and not released until the mouth of the alveolus is opened. The process over the palatine root (the palatine process of the superior maxillary) is quite thick and seldom gives to any extent; but the two buccal roots which stand on a line parallel with the buccal plate of the alveolar process, are no great distance from the soft tissues and by steady buccal pressure this process gives and the tooth is allowed exit. Care should be taken not to make this pressure too great or apply it too suddenly, or the two roots in such close proximity may act as a lever and cause a loosening of a considerable portion of the buccal plate.

Inferior first and second molars: Traction, the force of which should be applied not only upward but backward, remembering that the apices of the two roots are not directly under the crown, but posterior to it, giving the root a curve backward. An error is made when the force of traction is applied in any other direction.

Rotation, none; as these are double-rooted teeth and rotation accomplishes nothing but increase of pain by alternately increasing and releasing pressure upon the highly vascular and sensitive peridental membrane.

Pressure should be directly buccal, although it may seem to the operator that the process is thinner upon the lingual aspect of the inferior maxillary. This is not generally the case; though, as with all other teeth, malocclusion or irregularity may make the process thicker upon the buccal surface.

Superior third molars: Traction, downward and buccal.

Rotation, in but one direction, one that would roll the top of the hand toward the median line. Pressure should be outward and buccal, and at the same time backward. Being the last tooth in the arch, and seated near the angle of the jaw, it is not very firmly supported by the process, which in some cases is almost entirely wanting on the posterior buccal corner.

Inferior third molars: Traction should be not only upward, but backward, which can be accomplished by allowing the handles of the forceps to lie across, and near the anterior inferior teeth, after grasping the tooth with the beaks of the forceps. As the traction is applied, raise the handles and we have an amount of spring which will tilt the crown backward in proportion to the distance the anterior teeth are separated by the opening of the mouth.

Pressure: This is the only tooth in which there is almost a universal exception to the direction in which the pressure should be applied to be in the line of the least resistance. In the case of the third inferior molar it is lingual. The coronoid process comes down, ending in the external oblique line, which is an eminence and materially thickens the jaw just buccal to the third molar.

It must also be remembered that there is little of the alveolus proper formed around the third molars; seldom more than that portion which builds in around the neck to ensure its retention. Therefore when the tooth is broken off it at once becomes a very difficult task to remove the remaining portion, owing to the strength and width of the bone at this point. Care should be taken not to employ too great pressure lingually, as the anatomical structure at this point favors fracture, which most frequently extends down and back to include the inferior dental foramen, the termination of the mylohyoid groove. Injury in this way and at this particular point may be rather serious in its effects, as fractures are most likely to follow anatomical weakened portions of the bone.

Feeling that this paper is already too long, I refrain from considering the extraction of roots and encysted teeth, which in many instances belong to the field of oral surgery proper. There are also many special shapes of forceps, each peculiarly adapted to special cases, the merits of which I would not in the least depreciate, as their presence in the operating case seems almost indispensable.

PROCEEDINGS OF SOCIETIES.

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Regular meeting third Monday in September, Dr. T. L. Gilmer presiding.

Dr. C. E. Bentley, read a paper entitled, "Report of Committee Appointed to Investigate what Work had been Done in the Public Schools in Civilized World by Dentists," and Dr. C. E. Kells, Jr., read a report of " A Case in Practice."

Dr. F. B. NOYES, opening discussion. I have been very much interested in this subject ever since the committee was appointed by the society and have followed it to a certain extent. I think that we should feel very grateful to Dr. Bentley for the amount of work which has been done by this committee. He is responsible for it, and it will be a matter of great interest to all of us, I think, to examine the detailed report as it is published. The documents which Dr. Bentley has received from these various cities in which a system has been established should be of great interest to us here in Chicago. The American cities, as Dr. Bentley has said, seem to be behind in this matter of dental instruction in the public schools and of the public in general. In connection with this it will perhaps be interesting to know the action of the Minnesota State Society a week or so ago in this regard. There has been some agitation, in Minneapolis particularly, in regard to the instruction of school children, and some helter skelter plans have been followed out for a year or more, but at a meeting of the State Society the first week in September they appointed a committee of three which during the Christmas recess is to meet with a similar committee of three appointed by the State Normal Board, and the two committees jointly are to elaborate some system of dental instruction in the public schools. It is the idea, so far as the dental society is concerned, that this plan shall include also a system of examination of the public school children's teeth; to not only compile the statistics which are of value, but with a direct influence, if possible, to the proper professional care of the children's mouths. In Minneapolis, as in other cities, for several years the medical profession has secured the examination of the eyes of the children. It is done, I believe, in some of the Chicago schools, and in other cities, but it has been in operation for some years in Minneapolis and has led, not only to valuable statistics, but to a definite and positive improvement in the average sight of the public school children, and it is hoped that the proper dental instruction will lead also to a similar improvement, not only in the condition of the teeth, but subsequent general physical condition of the children. The committee of the dental society there reported one case in which the children in the public schools, in some city in England, I believe, were examined by the regular inspector who was empowered to designate what work should be done, and it was a condition of that child's return to school the following year that what had been prescribed should be performed.

All those matters are of value to the entire community, and I feel as if it were a duty of the dental profession to take hold of them in the same sense that it is the duty of the medical profession to take hold of the proper examination of the general health and condition of the eyes of children in public schools.

Dr. C. P. Pruyn: Of course I am interested in this subject, as we are all interested in it, but unfortunately I have not done any work along with this committee, because the committee has been an able one and they have done their work better than I could have done it, and did it without my assistance, and it has been well done. But when we realize the importance of the health of the individual, and the importance that his teeth, and tissues surrounding the teeth, play upon his general health, we are impressed with the fact that this is a great work that we are undertaking. Think of the work that this committee has done: 167 letters sent out to 167 towns of over 100,000 inhabitants. We appreciate the amount of work they have done. A simple vote of thanks from the society to the committee for their arduous labor would be a very mean and cheap way of showing our appreciation. I would suggest that we do something better than that. The committee knows best what ought to be done, and I feel confident that if they will outline some work for us we will all follow their suggestions, and in this way show our appreciation in a tangible form. We know that the life insurance companies of this country attribute very largely the increased longevity to the work of the dentist, and our work as a profession is being appreciated more and more as the years go by, and now is the time for us to strike while the iron is hot. Do this work as it should be done and great good will come of it. It will take long years to do it. Many of us who are here to-night will be dead and gone before any great work is accomplished. But it takes years to change the thought of a nation, but it *can* be done. I would say to the committee, if I can help you in any way call upon me and I will be at your service.

Dr. Geo. H. Chance, of Portland, Ore.: While I was sitting here I was thinking about a man who was taking lunch with me upon a certain occasion. We were talking about class meetings. He said that he had been a Christian on and off for nigh onto forty years. I have been a dentist on and off for nigh onto forty years; mostly on.

I arrived in Chicago at 12:30 to-day, and I want to say that I feel to-night as though it has already paid me for coming the distance I have, in listening to that paper. And that little clamp was a revelation by itself.

I have been doing a little work along that line myself. You have a great many dentists here, and by the way, although you are all Chicagoans you are not all skunks, although that is the English for the word Chicago. You know you have not to go away from home to get the news sometimes. I used to feel as though Boston were the hub. I think Chicago is the hub to-day, especially on these lines. I have written a little book just on those very lines in trying to instruct the people in that matter. I delivered one or two addresses before the association of teachers in the west, trying to inaugurate something of this kind. And I wish to say now that if the committee will put this in pamphlet form I am perfectly willing to pay my share of what it will cost.

You know people come to us very frequently, especially these foreigners, and say to us, why is it that when we come to this country our teeth all go to pieces? The statistics given them give the answer to that immediately. We can do a great deal, gentlemen, and there is another side to this, that in educating the people you put money in your pockets. You have a great many students in your schools in Chicago. Dentistry is not for the few, but for the masses, and there are more people, as we all know, in the United States of America who attend to the condition of their teeth than there are in any other part of the world. It has been done by the superior knowledge and work of the American dentists; there is no question about that. (Applause). When we talk about oculists we talk about Germany; when we talk about dentists we talk about the United States of America.

I may go back a moment, and you will pardon me if my remarks are rather desultory. I have filled teeth on a chair like that, with another one this way and that for a head-rest. I know something about it. I know what it means out in the woods, out in the wilds. And yet, I have some of those monuments today, thank God. The money is spent long ago, but the work is there. And I want to say to the younger members of this profession,—never mind, lose five dollars, let it go, you will get twenty for it, but tell your patients the truth every time. Don't be a dental "grafter." If a tooth can be saved, save it, and don't put a gold crown in the front of the mouth. (Applause.)

I come from the far West, where I look at the grand old mountains; not a flat place like you have here. But it is all right, brethren, we are all one and we ought to stimulate each other. And I tell you, I love my profession, and if there is one here who don't love his profession, but is just in it for what he can make out of it, get out!

Dr. C. Edmund Kells, Jr., of New Orleans: I will not be able to say very much to you upon this subject as it is entirely new to me, but it certainly has put some new ideas into my mind, anyhow. I believe that most Americans think that there is no body like the American dentist, and I think so myself, from the operative and practical standpoint, but it does seem to me as though we were a little behind on some subjects. This paper has been decidedly interesting, and I think it will be more interesting from a practical standpoint when the time comes that we will get these statistics from the various states of our own country. Now, we have in this country a certain climate and climatic conditions, and from what I have seen of patients who have come into my hands from dentists in the far West, in the far East and far South, I believe that work that we will do in one section of the country will not do in the other. Now there is not a winter passes but what some poor, lone sufferer gets stranded down in New Orleans. Sometimes they send to Chicago for their own dentists and sometimes they don't, and with these cases I find all kinds of work. And I am satisfied that what you can do in New York, for children especially, you cannot do in Louisiana and be successful; or what you can do in California cannot be done satisfactorily in Louisiana. Now, I myself am working for the third generation. I have worked for the grandfather and grandmother, for the daughter, and for the last two years the third generation has been brought to me, and I have seen where education has done good, under my own observation.

I believe, as I started to say, that if we could get the statistics from the various states we would get a great deal of knowledge that would be of practical use to us, and I myself hope that it will surely come before very long.

Dr. Oscar Carrabine: I am very much interested in regard to children's teeth. Of course, I recognize that this is a very important subject. I should think that we should start in a dental school. The young dentist of to-day has not had enough advice in many things professionally. Now, if we had a man who would go to a dental school, be honest, fair and square, and talk to young men and tell them the two sides of dentistry, I think that we could get it off of a commercial standpoint. As we walk down State Street to-day and see men standing out on the street soliciting patronage, and have our patients tell us about it, it makes a man nearly blush to try to uphold a professional dignity. But if a man could go to the dental schools and tell the young men that they have more opposition in regard to advertising than the other way, it might change their minds some, and let them be honorable or not at all. Then in regard to educating the pupils in the high school; that is very important and I think that the committee, which has been formed, should appoint men that could talk, men that are willing, and get in every school in this country and educate the young people, not only in regard to the care of their teeth, but in regard to dentists, and point out the difference between a dentist and a man who stands on the street and solicits patronage. We cannot stop those men, there is no law that will stop them, but there is one thing certain, when you educate the younger generation in regard to that, and when they grow up and point a finger of scorn at those men, I tell you it will make a change, and I think that is about the only chance we have.

Dr. E. J. Perry: One thought occurred to me in this connection. I believe the subject under discussion is instructing the school children in the public schools. The gentleman over here says we must instruct the students. The thought occurred to me, let someone take a shy at the State Boards. Now I don't rise in defence of the colleges at all, but I want to call your attention to one general fact, and that is the gradual raising of the standard of education in our dental schools. Year by year the standard is being raised, not by law, but voluntarily by the schools. You may make all the laws you have a mind to, and you can't abolish quackery; it will thrive and grow just the same. There has been no abatement of quackery in the cities of the United States since the introduction of our State laws. The way to educate the public, in my judgment, is to be honest personally and individually with your patients and keep the spirit of commercialism out of your office, and don't spend your time belaboring the quack. The people will find him out; let them pass judgment upon him. If the public do not appreciate dentistry, it is the fault of dentists. When the public does appreciate dentistry, it will make a place for public instruction in the schools.

I have seen a gradual and steady appreciation of the general public of the dentist myself. And I have parents bringing their children to me with care and anxiety in their faces concerning their teeth, and I know from what little I have done to instruct my patients that they have grown into an appreciation of the services of the dentist, and I believe this is the most effective way to bring it about. What can be done in the public schools I don't know. Whether we can go into the public schools and lecture to them, or whether we can make much by examining the teeth of the children, I don't know. It seems to me the place to begin, or the place to emphasize the idea is that we ourselves should be personally professional men.

Dr. Geo. H. Chance, of Portland, Ore.: Right on that line of thought I have a method which I would like to give to you. When a child comes into my office I commence to talk to it about the teeth. I have a little key that I give them. I ask them how many weeks there are in a year; they say fifty-two; I say that is the total number of teeth. Then I ask them how many fingers and toes the baby has; they tell me twenty; I tell them that is the number of baby teeth. Then I ask them how many fingers and toes father has; they tell me twenty; I tell them that those represent the twenty teeth that take the place of the baby teeth. Then I ask them how many calendar months there are in a year; they tell me twelve; I tell them those represent the teeth that have no predecessors, the molar teeth. I ask them how many hours in the day; they tell me twenty-four; I tell them those are the number of germs that lay the eggs that form the fifty-two teeth. It is wonderful how you can educate the young ones with a little simple thing like that, and they will commence to talk teeth, and that is what we want them to do. I thought I would give you just that little thought.

Dr. C. E. Bentley (closing discussion): On behalf of the committee I desire to thank you for the many kind words you have spoken with reference to our work. I will take this opportunity of suggesting some things in regard to what might be the outgrowth of this particular work. The work the committee has done is valuable in so far as the collection of data upon the subject is concerned and the suggestiveness of the methods examined.

The logical result of this work, it seems to me, is to see what can possibly be done in the way of inaugurating a similar movement of this kind in Chicago. That is what we desire to eventually establish. Now, as an organization we have not had authority to go about this in a systematic or methodical way, but as individuals some of us have attempted something of this kind and it may be of interest to know what the result of that work has been. Some of the Chicago members of the Board of Education have been seen individually and have been interviewed about the practicability of introducing something of this kind in the public schools. The first thing we were confronted with was the query: "What work has been done in other parts of the world on this subject?" We did not have our statistics and so were entirely at sea in that regard. Then again, we found some opposition because, as we were told, the dentists were not sufficiently strong politically to entitle them to any great amount of consideration. We were told that as soon as the dentists were permitted to come into the schools that the eye doctors, and as one member of the board said, that possibly the corn doctors, would ask permission to come in and examine the corns of the children next. I want to tell you that this is a very serious work, and a work that is going to take time and energy to accomplish, but it is a work in which none of us is discouraged, because we see at least a ray of hope for the future. Individual effort, as has been referred to in the discussion so far as teaching the public is concerned, is a herculean task. We may educate a group, or a set of groups, but that never reaches the mass. You possibly do not know that only twenty per cent of any civilized community have their teeth attended to. What about the other eighty per cent? The other eighty per cent have not been educated as to the importance of caring for their teeth. The summation of the individual effort of the dentists of Chicago has only resulted in presenting this thought to twenty per cent of its population. It seems to me the only plausible way to get at the other eighty per cent is by some organized effort, and that must have the moral, financial and active support of the dental organizations.

I want to suggest something further as supplemental to this work. I would suggest that this society, rather than giving us a vote of thanks, for which we thank Dr. Pruyn for the implied compliment, if this society would appoint a committee that would have for its work the placing of dentists into the public schools for the purposes of examination and instruction and back up that committee with their moral support, we could create a sentiment that would sweep every unreasonable objection before it. If we can interest such men as Dr. Christopher, who has been responsible for the introduction of physicians into the schools of Chicago, and others of the Board; or if we could get the moral support of the Jewish Training School where a splendid system is in vogue; if we can get the moral support of these forces to concentrate and help this committee that might be appointed, I do not think that it would be very long before we would have something encouraging to tell you. I may say that the newspapers of this city are ready and willing at any time, whenever we assume an organized front, the press of the city stand ready to help us carry on this work. There are a number of teachers in the Chicago University, Northwestern University and in the public schools who have been seen and who are only too willing to give us their moral support in order that this idea may obtain. I want to say that the idea is growing in a primitive way in the United States It has been the privilege of some members of this committee to address various organizations throughout the United States on this subject. I met the School Board at Elgin under the most favorable circumstances, together with the dentists, and read a paper on this subject. They only received the missive half heartedly and nothing has ever come of it. What I am primarily interested in is that Chicago should have dentists in the public schools and the time is ripe for it. The preliminary work, in my opinion, has been done by this committee. The press are willing to coöperate with us. What this society and what other dental societies need is a committee to work together for the consummation of this plan and when that is done the work of this committee will be made effective.

Dr. H. A. Cross: In the remarks that have been made I have failed to discover that there was any method advanced by which the parents of the children could be reached. If you have access to the children and point out to them the care that their teeth may require, how do you expect to reach the parents or those who would see that it was accomplished? Has any one any plan, or have you, Dr. Bentley, any plan by which you could reach the parents of the children and induce them to give the proper attention to their children's teeth? The parents need educating along this line. How is that to be accomplished?

Dr. C. E. Bentley: In answer to Dr. Cross I would say that the work of the committee was to gather statistics, and that has been presented this evening. Although I might suggest that if you will recall the plan that was adopted at Bordeaux you will remember that the children were examined every three months. It was the duty of the dentist who examined the teeth to report his findings of dental caries or any abnormalities that were found to the school director, who in turn was compelled to report the same to the parents, together with the suggestion that a free clinic was established for the correction of such. It would be largely with the committee to formulate a plan if this society saw fit to create such a committee.

DISCUSSION ON DR. KELLS' PAPER.

Dr. W. H. Taggart (opening discussion): I have nothing special to say on the subject except to commend the instrument that Dr. Kells has shown us. In coming down on the car this evening I devised something that I think may answer the same purpose. That would represent an incandescent lamp with a base (referring to blackboard), and just to make the experiment I wound around it a tube of paper to extend it up like that, and this part I filled in with white sand, with the expectation of putting an arm off there to lay the instrument on. The instrument lays on there and goes down into the white sand. The incandescent lamp is turned on and gives abundant heat to warm the instrument perfectly. If you lay an instrument on a metallic surface like that, the metallic surface has to be a great deal hotter to conduct the heat to the instrument, whereas this instrument is laid in the sand and gets its heat all around. The idea could be carried out and made quite an effective little instrument.

Dr. KELLS: That would be all right, but it would take a good while to heat that sand.

Dr. J. A. DINWIDDIE, of Lowell, Ind.: I think I have been rather a delinquent member of this society. The accommodations for getting in and out are so very poor that I have attended very few meetings. I have profited a great deal by what I have heard this evening and I think it will be a stimulus to come in again. I have nothing further to add to what has been said tonight.

Dr. C. EDMUND KELLS (closing discussion): I think I have said about all that is necessary on the subject.

INCIDENTS OF OFFICE PRACTICE.

Dr. F. B. CLEMMER: At one time I had a lady for whom I made an upper set of teeth. I removed an entire bridge and made her the set, using aluminum as a base. That was sometime in February. Last week I received a letter from this lady, who is now living in Canada. She has a peculiar condition, resulting from this plate, which I would like to present before the society, that I may advise her properly regarding it. I will read an extract from her letter: "I find that when the plate comes in contact with fillings in my lower teeth it produces flashes of light in my eyes." (I never knew my work was quite so brilliant as that.) "I noticed this before I left your town, but did not attribute it to the plate until afterwards. What would you suggest about it? Do you think the wearing of it under these circumstances will have any ill effect on the health? Of course, it is most noticeable when I am eating; and at other times there is quite a metallic taste in my mouth." I would like to know what causes it. Of course, we can suppose a galvanic current; we can suppose acidity of the saliva, probably. I never heard, in talking to dentists of much more experience than I have had, that aluminum left a metallic taste in the mouth, nor was it such a conductor of electricity that it produced flashes in the eyes.

Dr. J. E. NYMAN: Some time ago at Springfield, Dr. Keefe made some very interesting experiments in regard to galvanic action in the mouth between dissimilar metals, and it was remarkable to note that even between two different amalgam alloys in the mouth there would be a galvanic action. It is quite possible that the aluminum which has a rather high specific electropotential is so affected by the saliva under some conditions that a galvanic current is generated when the plate is brought in contact or close enough to the fillings in the teeth so that the current is conducted through the saliva. The suggestion I would make would be that she have a a rubber or gold plate and that the amalgam fillings be removed, the dentine covered with cement to act as an insulator and the teeth refilled.

This repeated galvanic action will in time cause a disintegration in the aluminum plate causing the surface to flake off and making the whole plate brittle.

CHICAGO DENTAL SOCIETY.

Regular meeting October 2, 1900, the President, Dr. Geo. W. Cook, in the chair.

Dr. J. W. Wassall read a paper on "Personal Care of the Mouth." See page 955.

Dr. J. G. REID (opening discussion): You will observe that I was awakened out of my trance by the president in reading this paper to-night. I did glance at this paper, as I remember, some three months ago, and as I remember it now it seems to have been partially rewritten, which has been of an advantage.

The question of hygiene of the mouth is not a new one; it is old; it is something which has interested the dental profession ever since the profession has been a profession, and I do not see that we are any farther along now than we were a quarter of a century ago, any more than we are probably educating people more from day to day the need of taking care of the mouth and teeth. And it is the individual instruction which people receive that does the good. There is no public announcement of any description that does the work. It devolves upon the dentist to look after the hygiene of the mouths of the patients who submit to his care. The greatest difficulty that I experience in trying to cultivate the habit with patients is the fact that they resolve to do what you tell them to do very nicely, and when they have left your care they fall back into the old habit of neglect. Occasionally here and there is one who will persistently follow your instructions fairly well, but I have, as a dentist, endeavored to instruct people as carefully, thoroughly, conscientiously perhaps, as any other man, and I find that very fact to contend with, that they do not follow the instructions, all of them.

The question of dentifrices. I believe a powder dentifrice is the proper dentifrice to be used. I find that people who use a powder do not use it in the proper quantity at each individual brushing of the teeth. They economize on powder very much. And I believe that powder is one of the important things for a proper cleansing of the mouth; in fact, I consider it of more importance than I do the exact quality of the brush, and I think it is of as much importance as the use of floss silk for the cleansing of the teeth in the interproximate spaces. I always instruct my patients to use large quantities of powder, and I think I have learned that from my own experience. I use a powder pretty faithfully and I find that it takes a good deal of powder to brush the teeth and brush them properly and smoothly. My attention has been called to one or two dogs lately; highly domesticated dogs that live in the house and sleep on a rug, that are losing their teeth from pyorrhea. They eat a good deal of cake and candy and such things. The canine family as a rule usually have pretty good teeth, but I speak particularly of the highly domesticated dog. In one of the dogs which I speak of the central incisors have been lost by the disease which is incident to the diseases of the human mouth, and those dogs, as I say, live very largely on sweetmeats.

Dr. A. W. HARLAN: The subject of personal care of the teeth is one which has to be settled by every individual. Some people can keep their teeth very well by brushing them thoroughly once a day, and some other people can keep them in very good shape by rubbing them with a towel or napkin, and others do well who eat raw fruits and raw vegetables, and others by eating tough meats and chewing gum. If man could perform all of the natural functions of the body at the necessary time and place as animals do, he would be able to keep his teeth in the same way that the healthy dog does. But he can't do it; he has got to plow, split wood, and haul coal, and work in the office, and do things like that, and the natural functions of the body are suppressed for hours at a time. And that is one of the reasons why men and women can't keep their teeth clean, and why the teeth get loose incident thereto. There is a great deal of dependence placed nowadays upon the use of drugs and mouth washes and things like that. I venture to say that there is not a man or woman in this room who has ever been benefited by the use of any kind of a concoction gotten up as a mouth wash, *per se*, for its intrinsic value. They are absolutely useless for cleansing purposes, and the very best bacteriological investigations go to show that if we kept the teeth bathed in all kinds of antiseptics and disinfectants for every one of the twenty-four hours in the day, there would be thirty or thirty-five minutes each hour when bacteria and their spores would be at work. Consequently, it depends entirely on the fidelity with which the one or two or three operations of cleansing the teeth are done whether they be saved or not. And those people who have to have their teeth filled, it depends on the care and skill and good sense of the dentist who is taking care of their teeth. People are full of good intentions and all that, and they say they will do thus and so. Well, there are thirty thousand dentists in the United States and there are seventy-five million of people, and that would give each man, if he had an opportunity, twenty-five hundred or so to look after, and it is impossibe for any one man to care for twenty-five hundred people every year and see them twice or three times. Probably the most that the busiest practitioner in this room could attend to in a whole year would be three hundred and fifty to five hundred, and he would have to work eight or ten hours a day to do that. The way to look at this thing is to give the very best radical treatment to your patients that you can. Illustrate to them in the most forcible manner how the teeth should be cleaned and tell them something about the use of their teeth as a masticatory apparatus. We all feed ourselves on slop and gruel and fluids and things like that, and think we are living in a high state of civilization. It is absurd. Half of the children that you know don't eat a crust, and every morning you say, "Oh, yes, he must eat cracked wheat and rolled oats," and all that sort of mush. If you don't give the teeth exercise, and if you don't give the child air, and if you don't make him bathe and keep clean, what sort of a man is he going to be when he grows up?

I wish to say that I think Dr. Wassall has read a very interesting and instructive paper, and I hope that those gentlemen here who have not practiced more than two or three years will just remember this: That if you place dependence upon concoctions and drugs and things like that for taking the place of manual labor in cleaning teeth, you are placing your dependence upon something that is nearly valueless. Medicines are only useful to correct, not as a steady diet.

Dr. J. H. Wooley: I didn't intend to say anything, but it seems to me that it is due the paper that some of us should take deep interest in the subject that has been presented to us in so able a manner by the essayist. Many think it a thrice worn tale, but it seems to me it is really the foundation to the betterment of the condition of the teeth. We are told that the teeth forty-five years ago were in the same condition, as regards disease and health, as to-day. We noticed at that time pyorrhea, loose and decayed teeth, and many were taught in the cleansing and the removing of tartar at that time to do their work most thoroughly, not thinking or knowing anything particularly about pyorrhea. No systematic course was adopted then especially for healing the gums and restoring them to a healthy condition as now. Those practicing at that time in many cases were opposed to many of these different kinds of dentifrices and used only English prepared chalk with a thorough brushing of the teeth, but with no such special directions as the essayist has given to-night.

Dr. Edmund Noyes: What has been said seems to me eminently fit and useful. I have observed, the longer I am in practice and the larger proportion of my patients show some earnestness in the effort for personal care, that watchfulness in regard to the manner of cleansing the teeth is often necessary. And the brushing of the teeth longitudinally instead of crosswise needs to be insisted upon. The number of persons who show injurious wear at the necks of the teeth from cross brushing in any man's patronage whose people are careful, is very considerable. The suggestion of the essayist that artificial preparation of food requires artificial care of the teeth goes very far toward explaining the necessities of this question. I am far from believing that the state of Nature, what might be called the primitive and natural conditions, in which the teeth did not need artificial care, were better than the conditions existing to-day. The benefits of civilization are enormous, beyond the power of us who enjoy them to properly estimate. And I do not regard it as a calamity that we must make one sort of artificial care and attention offset another sort of artificial conditions. On the whole, the artificial methods of life have greatly advanced the welfare, the development, the efficiency, the comfort and the happiness of the human race.

Dr. T. W. Brophy: Whatever has been accomplished in the improvement of hygienic conditions of the oral cavity in the human family has been brought about through efforts such as Dr. Wassall has made to-night. The literature of our profession has not enough material of this kind in it. Some way it seems that men who become engrossed in other lines of professional work overlook the importance of this subject. I think we do too little in spreading the importance of hygiene and the care of the teeth among the people generally. I must say that some of these little books which have been written by dentists, no doubt, and circulated freely by manufacturers of dentifrices, have done a great deal of good. They have put the people to thinking about the care of the teeth; they have led to the teaching of oral hygiene in the schools. It came to me lately through a little experience of my own that some of the schools in this country demand that pupils must before admission have their teeth put in proper order, and unless they have them so cared for they will be barred from admission. That is very important, because if a pupil goes a long distance from home with his teeth in bad condition, and then dental troubles arise while away from home, it interferes with his studies and so he does not make good progress, and the management of a school that have the reputation of the school to defend do not want a pupil to go away without having made good progress. In fact, they send them home if they have not gotten their work up to a proper standard. And so you see that very step on the part of some of the best schools of the country is leading people to give more attention to the subject. I think the making of examinations of the teeth of animals is of very great importance, and if the statements made by Dr. Reid are verified by the statements of others, it would seem to me that we are perhaps, all of us, in a way degenerates in not having the same conditions that our remote ancestors had. Of course, that is with me only theoretical.

I have nothing further to say except to state that I am glad that Dr. Wassall read this paper, and I hope we may have more of them in the societies, because this subject is the keynote of all there is in the care and preservation of the human teeth. If we can impress upon the people the importance of caring for their teeth we will accomplish a much better work than by taking care of the teeth that have to some extent, at least, gone into decay and become very greatly impaired by the fact that a greater portion of substance has been lost as the result of carelessness on the part of the people themselves; yet it is not perhaps so much carelessness on their part as the lack of the performance of our duty in showing them the importance of adopting these methods that are laid down and seeing that they are rigidly enforced.

Dr. J. N. CROUSE: The essayist states that it is wrong to instruct patients to use the brush more than twice a day, but common sense teaches that the time to brush the teeth is when there is food lodged between them, and that is immediately after eating. Patients should be instructed to brush the teeth until clean, or considered clean, and then examine them with a glass to see what places have been missed. I take a great deal of care and trouble in this matter, showing every patient where I find deposits on the teeth and what points have been missed in brushing.

Many mouths are kept cleaner on one side than on the other, and this may come from the fact that some people chew altogether on one side of the mouth, or because the brush is more easily handled on one side than on the other. The teeth should be brushed in every direction, and not up and down or crosswise only. The number injured by brushing is so small that you need not caution patients about brushing their teeth too hard or too much. It is a rare thing to examine a mouth and find it even comparatively clean, for most people do not take as much care of their teeth as of their finger nails. I therefore cannot agree with anyone who fears too much brushing or cleaning of their teeth.

I am a great believer in the use of coarse foods, not only for the cleansing effect, but also for the exercise given the teeth.

Too much soft food is used, however, and this lack must be made up, so far as cleansing goes, by the brush. I believe the salvation of the teeth is in washes that will kill germs about the mouth and I know it to be true in my own case, as for ten years I have had no trouble. Washes are better than powders because they go all over the mouth while the powder goes only where the brush takes it. The coating which most people have on the tongue can be readily removed with several of the mouth washes in use to-day, and in the hygienic treatment of the mouth the tongue ought to be taken into consideration and kept clean.

Dr. Wassall (closing discussion): The instruction of my portion of the seventy-five million inhabitants of America in the care of their own teeth is a very important matter to me, and if I can teach two every year I feel fully compensated for the effort put forth.

Dr. Reid thought there had been no improvement in oral hygiene in the last forty years. I have seen marked improvement in the persons with whom I come in contact. I think people are becoming more enlightened on that subject, as they have in every branch of hygiene. I think there have been great advances and that we can expect still greater.

Dr. J. G. Reid: If you will allow me, I didn't say that we were not doing good; I said that in our methods of teaching I did not think there had been much advance.

Dr. Wassall: I think Dr. Harlan was right in saying that all people do not need to cleanse their teeth in the same way; there is no doubt about that. The method of teaching the care of the teeth is also individual. Dr. Harlan has one method and Dr. Crouse another; they both accomplish the end sought. Dr. Crouse thought that two brushings perhaps was not enough, or if two brushings were good three would be better. I gave my reason for only two brushings. Three brushings wouldn't do any harm, except that it is inconvenient or impracticable. I find that people who brush their teeth two times a day are more thorough. I find if they give thought to it on those two occasions in the twenty-four hours, they do much better than if they are told to clean their teeth after meals when it is so often an inconvenience.

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THE END OF THE CENTURY.

Many persons expected to survive the century, but, alas! they have passed hence, and the achievements of the past fifty years are as nothing to them. In looking backward for a few of the discoveries of the years that have gone, we must consult the musty tomes and the forgotten lore of bygone times. I well remember that as a young student in an office not a thousand miles from Chicago that the rubber dam was not used, and there was not a foot engine or electric engine, and that was not so very long ago. The cohesive property of gold was not known before the advent of Arthur, although many have claimed the honor of its discovery. Anesthesia was given to the world during the century, and even though the nature of Lethe might have been known centuries ago, modern surgery only availed itself of this priceless discovery the nineteenth epoch of the world's history. Modern dentistry was enriched with porcelain and gold dentures, and all of the vegetable bases that are now known are the fruit of experiment and discovery by painstaking laborers during this period. There were no mallets (except the hand mallet) when the century was born. The art of taking impressions in plaster was the invention of the past hundred years. Dental schools and dental legislation belong to the past hundred years. Most of the valuable literature—valuable because accurate and scientific, dates not further than 1820. A few good works were written before that time, but most of them were poor in matter, and many were reproductions of others still poorer.

Teeth were filled, extracted, cleaned and artificial teeth were made before the century began but not as they are made to-day.

Roots of teeth were filled in the eighteenth century and fillings were hammered into the teeth, but these operations were not systematic. The antrum of Highmore was badly treated by the best surgeons and artificial vela were poorly constructed until 1840. The operation of closing cleft-palate was practiced but not as now done. Artificial noses and facial restoration belong to the nineteenth century. All of the wonderful delicate operations that are done so well by so many expert operators, were poorly done or not done at all for lack of conscience or knowledge. We who live in this era fail to appreciate to the fullest the wonderful strides of the profession of dental surgery and dental art unless we are acquainted with the scanty knowledge of the period before the beginning of the year 1800. Any one who has an itching to talk on this subject will get space in THE DENTAL REVIEW for 1901 if he desires it.

CLOSE OF THE VOLUME.

December is written once more, and for the fifteenth time in this journal. Our first issue came into the world November 15, 1886, and we feel quite a stripling now. This is the early youthful period of the life of the DENTAL REVIEW. Many mistakes and errors disfigure the past, but with each year it becomes easier to avoid those of inexperience. We believe that the matter which we are publishing from month to month more nearly reflects the spirit of the growth of thought and the intellectual development of the great Middle West than is reflected in the pages of any other journal. The DENTAL REVIEW is the encourager and developer of the latent talent of this vast region, and we need only refer to the 14,000 pages of the printed part to substantiate this. When this journal was first issued things in Chicago and the Northwest were not so well placed before the eyes of the world as they are now. The DENTAL REVIEW is unique in being the first journal in America to print something hitherto unpublished or not publish it at all. We still adhere to this plan. A paper to see the light of day must appear here first or we cannot use it. This gives a value to it according to its merit. Our writers are of the best; they are not copyists, and do not pad to make long papers. The editorial pages are not given to extravagences but rather to subjects of real live interest. They are not solemn or bowed down to a tradition. They are not filled with retrospect. Many subjects are not discussed at all because they are too light for dignified journalistic utterance. Our policy is to stimulate the reader to do his own thinking. We do not profess to discuss all scientific matters, but try to let truths dawn upon the reader in the pages of original articles. We let the speakers before societies speak in their own language; sometimes this is illy done, but it reflects the mental grasp and the crystallized knowledge of the speaker and helps him to do better if he is a thinker or student. Will you help to make the next volume more valuable than Volume XIV.?

DIGESTION OF THE DENTAL PULP.

The subject of pulp digestion was presented to the International Dental Congress, Paris, August 8, by the writer. I have been using the method there presented in practice for nearly three years for all pulps in teeth having small and tortuous roots. The substance relied upon for digesting a pulp is papain. This is a white hygroscopic powder, prepared by Merck and others. The method of using it is as follows: A small quantity, one-half to one grain, is made into a paste with glycerol and one drop of 1 to 300 hydrochloric acid is added. After the bulbous portion of the pulp is removed this paste is packed into the pulp chamber and sealed in the tooth with oxysulphate or oxyphosphate of zinc or gutta-percha for one week, or two weeks if necessary. When the cavity is again opened (using the rubber dam), the pulp will be found liquified or digested into something like thin glue. This is easily removed, and the root may be filled at once. It is applicable to deciduous pulps and to the pulps of all teeth. The pulp must be dead entirely, as papain will not act on living tissue. I regard this matter of such great importance to the whole profession that it must go out to be used before the paper is published in the transactions. (The paper will be found in full in the *Dental Cosmos* for December.) At last we have a certain process for the removal of the pulp not involving a long and tedious operation with instruments, which is such a bugbear for many operators. This will also tend to do away with the uncertainty of pulp mummification, at all times more or less uncertain. Papain is not poisonous, and putrefaction will not take place in a sealed pulp chamber in the presence of so much glycerol and papain, with the added hydrochloric acid. Remove all the dead pulp possible before using the paste. Papain will act even if creosote or carbolic acid or zinc chloride or an oil has been in contact with the pulp, or even arsenic or alkalies. Get some and try it, and give time enough for complete digestion or liquifaction. I have allowed it to remain three weeks or longer in third molars with the whole pulp left *in situ*, only pricking it first, let the blood out, and then applying the paste and sealing it in the cavity.

MERRY CHRISTMAS AND HAPPY NEW YEAR.

Since 1892 the above caption for a short time could not have been addressed to a miscellaneous audience of readers of the professional class, and had the same significance that it has now. Everything is on the tidal wave of good prospects for the new century. All channels of industry and professional achievement are open for the men and women engaged in the practice of dental surgery or any of its specialties. The opportunities are at hand for any one in earnest to earn money or fame or gain distinction by good, honest, faithful work. Never were the opportunities greater. Mines of discovery are ready to be opened by the thoughtful and those who have energy and pluck. New books must be written and new ideas must be born to take the place of the old. All of the things material must be newly shaped and proportioned, so that we may keep ahead of the march of events, new situations must be met with ready knowledge and skill and no obstacle should be great enough to cause any one to stop or retreat.

When you are thinking of the past, with one sweep of the hand brush it away and look forward. Begin the century right; wipe out old scores; make new resolves; fix high your ideals and try to live up to them. Do not let any discouraging past deter you from making greater efforts to reach the topmost round of usefulness, and show by your energy and industry that the world was made for you and that you are going to enrich it by broadening the field of your labor and by conferring greater benefits on those to whom you minister. THE DENTAL REVIEW wishes you a pleasant and prosperous New Year.

THE OLD AND THE NEW.

Some space is devoted to the old and the new by the editor of the *International Dental Journal* for November in a manner to indicate lack of reverence for some things that happened years ago by recent speakers and writers in the Middle West. We are not the champions of any thing or person that will heap ridicule on the real progressive pioneers of dental surgery. What we desired to say, and we repeat it, is that many references to usages of a time and practices of a time before 1850 are found not as they are printed to-day or in recent years. Our libraries in the West are not inferior to the best in the East, and our students and teachers and operators are quite as well read in the history of dentistry as any of the editors or teachers in any portion of the United States of America. We have respect for the traditions of the past, but we have not for the claimants of a superior knowledge not based on facts or records that may be examined. These are our reasons for claiming that many of the references to things antique are not based on realities. We do not pretend to be filled with that encyclopedic knowledge that comprises all of the past, but in certain lines we do not accept statements—mere statements—for facts. The works of Fitch, Maury, Bell, Bond, Le Foulon, Waite, Robertson, Koecker, Snell, Bennet, Berdmore, Fox, Hunter, Harris and Tomes, and others of the earlier English authors, fail to show anything like what is known now about diseases of the gums and their treatment, the causes of disease, or the technique that is a part of the education of every student of to-day. We reverence the past, but the old fossil has lived out his day, and he must keep step with the new army or he will be lost forever.

ORIGINALITY.

Dr. S. H. Guilford, of Philadelphia, in his remarks in the *Stomatologist* says that many of the papers read by Americans at Paris were mostly rewritten, that is they had been read at home, etc. I will answer this criticism by saying that the papers of Drs. W. A. Price, of Cleveland, Dr. Geo. W. Cook, of Chicago, Dr. J. W. Wassall, of Chicago, Dr. J. E. Hinkins, of Chicago, Dr. E. R. Warner, of Denver, Dr. A. W. Harlan, of Chicago, Dr. A. H. Thompson, of Topeka, Dr. T. W. Brophy, of Chicago, and

Dr. C. S. Case, of Chicago, Dr. John F. Dowsley, of Boston, Dr. R. R. Andrews, of Cambridge, Dr. Richard Grady, of Baltimore, and Dr. M. L. Rhein, of New York, presented papers that were entirely new and that so far as I heard them only one or two of the above had anything in them that was a repetition of previous efforts by the writers; and these were merely tables to elucidate the subject.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—The editorial in the November REVIEW which refers to the prevalence of teachings of extension for prevention and how they have evidently carried away Chicago practitioners has created some surprise in New York, because it can hardly be said that one old enough to have been interested in teeth twenty years ago can discern any marked return to the old practice of tooth desecration except the horrible gold crown placed in conspicuous places in the mouth, but of course it is known where they got them. It is safe to say that they rarely emanate from the 'thrones' of our better men in any city.

Your remarks are timely. They may turn the tide somewhat. Extension for prevention is good practice if indulged in judiciously, for one must practice conservatism while practicing dentistry. The man who indulges in extremes always finds sooner or later that he has "gotten in" beyond his depth and generally just at a time when he was unprepared for the emergency.

The resolutions offered by the special committee at the general closing assembly of the (C. D. I.) at Paris are good *commandments* and should be learned by all sincere men.

Especially important are the first and fifth: 1st. Relating to uniform methods, one is i. e. methods of culture for the study of microbes. The fifth the "best way to combat charlatanism." I would say, *the method now in vogue.* The problem is working itself out quite rapidly in the East, for the adage applies well in this instance, "once bitten, twice shy." The charlatan is educating the public to the fact that there is a "higher standard."

Legislative safeguards are being established to protect the public and will be added to from time to time, and now to recount a few of the good things our societies have given during the past month.

Dr. R. C. Brewster, of Brooklyn, N. Y., read a paper before the Second District Society entitled, "A Review of Some of the Modern Medical Preparations Used in Dentistry," which was well received. It was confined to the subject of local anesthetics and antiseptics.

Dr. Hill, Dr. Jarvie, Dr. LeRoy and a few others were called upon to discuss the paper.

The meeting place last month was at the office of Dr. A. H. Brockway, 13 Greene Avenue, Brooklyn. Lunch was served after adjournment.

At the First District Society, on November 13, at the New York Academy of Medicine, 17 West Forty-third Street, where the attendance was not so great as at the Second District Society —possibly because it was known that refreshments were not to follow, for it does seem true that "the way to man's heart is through his stomach"—a posthumous paper by the late W. D. Tenison, D. D. S., was read by the Secretary of that society, and an exhibit of models was shown. The subject of the paper was "Good Results from the Extraction of the First Permanent Molars or Other Permanent Teeth." The title of the paper describes the full substance of the doctor's arguments.

Those to discuss the paper were Drs. Littig, Crouse, from Chicago (who was here on Dental Protective Association business and who, by the way, had something to say about the "Protective"), Drs. Northrup, Perry and LeRoy. The last speaker paid quite a pleasant tribute to the memory of Dr. Tenison. He also said that the only conditions under which he felt justified in extracting the first permanent molars as soon as they had fully erupted was where fevers such as are peculiar to early childhood had seriously impaired, arrested the development and decalcified the enamel sheath so seriously as to impair the function of those teeth, but he preferred to remove them later than Dr. Tenison implied was his general practice, and that time was after the eruption of the second bicuspid tooth.

The regular meeting of the Odontological Society of New York was held also at the Academy of Medicine on Tuesday, the 20th inst., and under the head of "Incidents of Office Practice," Dr. C. W. Many, of Norwalk, Conn., was introduced, who showed models of a case of regulating he desired information on. It was one of protrusion of the anterior incisors far over the lower lip, but with the bicuspids and molars almost normal. Photographs of the young lady whose mouth the model represented showed good lines from forehead to chin, except in the region of the anterior incisors.

It was a pleasure to hear Drs. Perry, Northrop and Littig express opinions as to methods of procedure, which certainly were born of good ripe experience and common sense. It made one feel that there was much of value in our societies that can be had but for the asking.

The paper of the evening was read by Dr. Edward Bradford Dench, a medical man, on "Aural Symptoms Dependent Upon Dental Caries," wherein the doctor cited many lesions of the ear and throat that were relieved or cured by removal or care of the teeth. He laid particular stress upon earache and facial neuralgia. His paper will make very good reading when published.

On the occasion of a recent reception to Mark Twain, among those present and taking a prominent part, was our genial friend and fellow practitioner, Dr. W. W. Walker. *The Daily Tribune* the following morning had a large picture on its first page, taken during the banquet, in which Dr. Walker showed to good advantage, his picture perhaps being clearer than any other except Mr. Clemens.

A few days ago we met Dr. John B. Rich walking down Fifth Avenue looking hale and hearty despite his years, and as erect as many a man of twenty-five. It was good to look upon his face again.

The November meeting of the New York Institute of Stomatology was held at the residence of Dr. T. W. Onderdonk, 838 President Street, Brooklyn Borough, Friday, the 9th inst.

Despite the fact that many from the Borough of Manhattan were "lost in the wilds" of Brooklyn and found their way into Prospect Park before they found President Street, the meeting was well attended and very pleasant.

A communication from Dr. Geo. A. Maxfield was read and examples shown concerning a new method of combining tin and gold in filling cavities, devised by Dr. Shumway, of ivory burnisher fame. The finished work was excellent and attracted much attention. The tin is first burnished in the cavity, and the gold subsequently burnished on that in a manner different from anything else shown before. Dr. Shumway is likely to present a fully detailed description of his method before some New York society soon.

Dr. Albert H. Brockway read a paper on "The Use of an Assistant at the Chair," in which he detailed his own methods, showing how time was saved in the adjustment of the dam, use of the chip blower, washing cavities, adjusting napkins, having instruments in readiness, preparing filling material, making appointments, receiving patients, cleansing and sterilizing instruments, winding up with a pretty little bit of poetry about "the Pikes Kept on Piking and the Eels Kept on Eeling."

Dr. J. Morgan Howe, in discussing the paper, alluded to one difficulty, viz., the objection urged by many patients to the continual presence of a third person.

Dr. Schmidt thanked Dr. Brockway for having drawn his attention to the great aid an assistant at the chair could be some years ago, saying he could not do without one now.

Dr. Geo. S. Allan then read a paper and presented specimens of what he terms "Boxings." Instead of making porcelain inlays or gold inlays, or spending hours inserting immense gold fillings, he would have a light hollow "box," made of *very thin* gold, to *accurately* fit the cavity—or as accurately as possible. Then he perforates the bottom of the "box" with many small holes—and fills it full of oxyphosphate which shall also cement the "box" into place—the work looked very fine in specimens passed about for inspection.

The annual meeting of the New York Institute of Stomatology was held Tuesday evening, December 4, at the residence of Dr. S. E. Davenport, 51 West 47th Street. As this is purely a business meeting only the active members were present.

The reports of the various officers show a very prosperous and satisfactory condition. The membership is over two hundred. There is a comfortable balance in the treasury and the interest of the members in the welfare of the Institute is very lively. The following named gentlemen were elected officers for the ensuing year: President, J. Morgan Howe; Vice President, Albert H. Brockway; Recording Secretary, F. Milton Smith; Corresponding Secretary, George A. Wilson; Treasurer, J. Adams Bishop;

Editor, Frederick L. Bogue; Curator, James G. Palmer. Executive Committee, to fill regular vacancy, Chas. O. Kimball; to fill Dr. Howe's unexpired term, Chas. F. Allan.

Dr. Edward A. Bogue, the retiring president, has just returned from France. We understand that he has relinquished his Paris practice, and hereafter will be with us in New York all the time. "THE BOROUGHS."

LETTER FROM MR. MURRAY. HONOR TO WHOM HONOR IS DUE.

TO THE EDITOR OF THE DENTAL REVIEW:

Dear Sir:—In accordance with the principle of the above motto may I beg for space in your valued journal to answer a question raised by Dr. Wedelstaedt in his "Impressions of the 1900 International Dental Congress," published in your October issue.

With a feeling of deep despondency I read of the worthy doctor's gloomy forebodings as to what things he was to suffer in his clinic, and I am not ashamed to say I dropped a manly tear over the tragic sorrows of poor Dr. Johnson, as recounted so graphically by him. But gloom was dispelled by the discovery that some ministering angel had spread his wings, in the shape of wooden pens or enclosures, round the chairs, forming a haven of rest in which the demonstrator could work free from the thronging and pressing of the multitude.

"I do not know," says Dr. Wedelstaedt, "to whom the clinicians are indebted for the thoughtfulness that prompted this action." Well, sir, this is just the point upon which I can throw some light. These pens were first used at the meeting of the British Dental Association held in Trinity College, Dublin, in 1888, and were designed by my friend and colleague, W. Booth Pearsall, of this city. Ever since, they have been used at all the B. D. A. meetings, and were seen and appreciated at Ipswich last year by MM. Sauvez and Choquet, of Paris. The design was furnished by the B. D. A. to the authorities of the Paris Congress, and I am rejoiced to think that this great boon to all who take part in clinical demonstrations is now likely to come into universal use.

I am, faithfully yours,
GEO. M. P. MURRAY, F. R. C. S. I.

DUBLIN, Nov. 26, 1900.

REVIEWS AND ABSTRACTS.

Discovery of Anesthesia, by Dr. Horace Wells: Memorial Services at the Fiftieth Anniversary, Philadelphia. Patterson & White Company, 1900.

This volume of 124 pages comprises the account of the discovery of anesthesia by Horace Wells. It is idle or useless to go over the old ground of the real discoverers. I have read the discovery of Guthrie, Long, Morton, Jackson and that old extract about Humphrey Day; but all the evidence goes to show that Wells was the real discoverer of anesthesia. He made it practical in the same way that Simpson did with chloroform and Morton did with sulphuric ether. This is a handsome volume and should be purchased by all interested in the subject.

A Practical Treatise on Artificial Crown and Bridge Work and Porcelain Dental Art. By George Evans. The sixth edition, revised. Published by the S. S. White Dental Mfg. Co.

This is a book of 367 pages, printed in clear type on good paper and illustrated with 651 illustrations.

It is divided into five parts.

The first part is on the preparatory treatment of teeth and roots for crown work.

Part second is on artificial crown work, the porcelain system.

Part third is bridge work in general.

Part fourth is on porcelain dental art. It treats of inlays, giving the Jenkins' system and others and also crown and bridge work in general. It is thorough and up-to-date.

Part fifth is on materials and processes used in crown and bridge work.

It is a book that is familiar to most dentists, and no dentist who does crown and bridge work can well afford to be without a copy.

It treats of all kinds of crown and bridge work in such a simple but thorough manner that it is useful both to the student and practitioner.

It is a work that must be appreciated by the profession, for the writer was not able to get a copy of the fifth edition from the Chicago branch of the publishers to compare with this last edition. W.

TREATMENT OF MALOCCLUSION OF THE TEETH AND FRACTURES OF THE MAXILLA. BY EDWARD H. ANGLE, M. D., D. D. S., St. Louis, Mo. Published by S. S. White Dental Mfg. Co., Philadelphia. 315 pages, 299 illustrations. Price, cloth, $4.00.

The sixth edition of Dr. Angle's work on the treatment of the malocclusion of the teeth is so completely rewritten and profusely illustrated that it bears no resemblance to the former editions. It is carefully written and systematically outlined. It contains a new and valuable method for aid in deciding the proper mode of treatment in a new classification of malocclusion.

Text-books on orthodontia that embody new and practical suggestions for the advancement of this art are few. Two of the most practical works of to-day, which embody all the varieties of appliances and methods of treatment, are to be found in Dr. Kingsley's and Dr. Farrar's work. For original suggestions of appliances and methods of treatment, Dr. Kingsley seems to stand alone. Farrar is to be commended for the thorough manner in which he has covered the subject. But Farrar is too voluminous, and one simply gets lost in the variety and intricacy of his appliances.

Dr. Angle's new book, with its classification of malocclusion, is, in my estimation, to the dental profession what Dr. Kingsley's is on original suggestion for appliances and for treatment. This new book has 315 pages and is divided into two parts and twenty-three chapters. Part I devotes twenty-two chapters to orthodontia, and Part II devoted one chapter to fracture of the maxilla.

The first chapter, which is devoted to the principles that govern malocclusion, is a most valuable one. Occlusion to-day is the basis of orthodontia, and is the keynote to the successful treatment of all cases of malocclusion. This thought is carried out in Chapter I, and the theme is again resumed in Chapter III. By the proper study and deductions from occlusion he has classified the different forms of malocclusion in Classes I, II and III, with divisions and subdivisions. In this classification the author classifies and outlines malocclusion according to the position of one, two or all of the teeth, or the relative position of the lower jaw. He follows this up by giving the methods of treatment for each case of malocclusion after it has been classified.

Other chapters are devoted to model-making, age for treatment, the author's appliances, facial art, etc.

In Chapter VIII, under the head of operative surgery, the author considers the resection of the peridental membrane. He advised severing the fibers of the peridental membrane that antagonize the movement of the tooth. This looks plausible on paper, especially with highly magnified cuts of same; but to invite disease and possibly the loss of a tooth by trying to gain time in such manner is a poor compensation.

From Chapter XI to XXI the treatment of each classification is considered, the author thoroughly illustrating each case. It is in the classification of malocclusion and outline of method of treatment that the author has made a great advance over similar works of this kind. As far as appliances are concerned, they are restricted to the author's system which is so well known.

Taken all in all, it is different from anything else before the dental profession to-day on this subject. To fully understand its contents it must be read and studied thoroughly. The short, crisp and clear-cut manner in which the author has written and illustrated this new edition is commendable, and to students and practitioners who are seeking a work on orthodontia which involves simply outlined methods of treatment for all classes of malocclusion, this work is highly recommended.

J. N. McD.

THE AMERICAN TEXT-BOOK OF PROSTHETIC DENTISTRY. In contributions by Eminent Authorities. Edited by CHAS. J. ESSIG, M. D., D. D. S., Professor of Mechanical Dentistry and Metallurgy, Department of Dentistry, University of Pennsylvania, Philadelphia. Second edition, revised and enlarged. In one octavo volume of 817 pages, with 1,089 engravings. Cloth, $6.00; leather, $7.00. Lea Brothers & Co., Philadelphia and New York, 1900.

Is Dr. C. J. Essig's Prosthetic Dentistry to-day the American System?

A careful review of the second edition of "The American Text-Book of Prosthetic Dentistry," recently issued, containing 804 pages of matter, 66 pages of added matter over Vol. 1, covering in a more or less successful manner not only the enormous field of prosthesis, but metallurgy and orthodontia as well, we believe will lead to the very natural query, "Do the profession and teacher find in it the to-day's *American* system of prosthesis?"

In Chapter I, the author, after giving some most excellent advice on the cleanliness and care of the dental laboratory, states that "at least two lathes, one designed especially for the grinding and fitting of teeth, the other for finishing and polishing only," are necessary to a well-appointed laboratory. We believe that a good lathe, if properly cared for, will last for years and do all the work of a dental laboratory. Additional illustrations, Nos. 2, 8, 9, 10, showing more recent ideas of work benches, are very good and deserve space in the book. Page 68 gives illustration and description of the Columbian laboratory lathe. The author admits this one lathe is "admirably adapted to either general laboratory use or as an office lathe for the fitting of porcelain crowns, or the adjustment of the articulation of artificial dentures."

Parts of pages 69 and 70 are devoted to the corundum wheel. In part states that "while grinding porcelain teeth the corundum wheel must be kept constantly wet to prevent the shellac from becoming heated by friction—a condition which instantly impairs its cutting properties." Very few, if any, capable prosthetists are using any other than *carborundum* wheels in their laboratories, which we all know are not open to the above objection. Still the author fails to even mention the advent of carborundum in dental laboratories. On page 70 we notice the *modus operandi* of "finishing dentures;" both metal and vegetable are entered into, though the chapter is entitled "The Mechanical Laboratory, Its Equipment and Arrangement." One would naturally look for such matter under the head of metal, vulcanite and celluloid denture work respectively. We also notice the absence of any mention being made of compressed air apparatus for soldering purposes, while much obsolete matter found in Vol. I is still retained.

Chapter II, under the head of "Metals and Alloys Used in Prosthetic Dentistry," is practically the same as Vol. I, with the exception that seven additional elements are noted, and nine is given as the number of noble metals, instead of ten, as in Vol. I.

A "text-book" attempt is made at metallurgy in this chapter, which is much better covered by well-known text-books devoted exclusively to this subject.

On page 151 Carroll's method of casting aluminum is gone into, while under Chapter XIII, page 512–13 the same description and matter is practically rehearsed. This chapter is justly a valuable one but should be eliminated of all matter save the metals and alloys used in dental laboratories.

The chapter on "Orthodontia Technique" contains many useful and practical ideas to the partially informed practitioner of that specialty. But in comparison with recent developments and issues of text books on orthodontia, we wonder if it would not have been wiser to have omitted this entire chapter from the work. We believe it would.

Chapter IV, "Molding and Carving Teeth." There seems to be very little new and original matter in this chapter, with the exception of a formula for flux (glass) for reducing the fusing point of enamel and the process of gold filling imitation, page 285; the illustrations and matter are about the same as Vol. 1, and therefore contains much out of date matter. On page 273 " Improvement in Furnaces," the author states that Fig. 296 represents a furnace made by Dr. Ambler Tees, where as Fig 296 illustrates "Enamel Cusps." Page 273, Fig. 314 is called the bi-muffle gas furnace, by Dr. C. H. Land, and Fig. 315, the Verrier gas furnace. This should be reversed; Fig. 315 being the Land furnace. On page 275, while under the subject of "Improvement of Furnaces," the writer introduces the description of making a Downie crown. This by right should have appeared under porcelain crown work. The question also arises, would it not have been well to have merged this chapter with that of continuous gum dentures, and cut out all matter not of recent date.

We fail to find any notice taken of the introduction and use of platino-gold solder in dental laboratories for metal substructure in all porcelain work. No porcelain worker would think of using 24 karat gold instead.

Chapter X. The article on page 422 by Drs. A. Dewitt, Gritman and Geo. B. Snow, on " Recent Improvements for the Proper Articulation of Artificial Teeth," with a description of the Gritman articulator, is, without doubt, among the best of all new matter found in Vol. II.

Chapter XV contains some new and improved methods of repairing vulcanite plates. We feel, however, the riveting methods are not worthy the space allotted for their description.

Commencing on page 588, the writer devotes some five pages of matter to "vulcanite regulating appliances." One would expect to find this matter where it rightly belongs—under the section on orthodontia.

Chapter XVIII, "Mechanical Preparation of Roots." The writer advises corundum wheels for shaping up, carborundum being again overlooked. On page 742, Figs. 988–990, show two extensive styles of bridges. A more erroneous planning could hardly be made. Each case demands, instead of *one* extensive bridge, two bridges, or even three separate ones. In case of repair, only the one small bridge involved needs be disturbed.

The chapter on Artificial Crowns is very disappointing, containing practically the matter of Vol. I. A description of the "half cap crown" is found in the new matter introduced; this operation as described is far short of the Richmond full cap method, and should be discouraged as a legitimate operation. Under the head of "Ready-made Crowns," page 679, the writer states that the "How" and "Brown" crowns are no longer made. The fact is, the "Bonwill" and "Foster" crowns are also no longer manufactured. I fail to find any mention of the recent ideas of constructing seamless gold shell crowns. On page 723 I notice this caption: "The Manufacture of Dental Bridges." Would it not be better to use the word "construction," or "building" of dental bridges? Anything rather than place a text-book in the hands of numerous students which states that the profession are manufacturers of dental bridges.

There are some three and a half pages devoted to porcelain bridge work, which read, so far as I can see, word for word with Vol. I. Porcelain crown and bridge work in the last four years has made as great, and in some respects the greatest advancement of any one special department of dental surgery.

FRANK N. BROWN.

MEMORANDA.

The best sterilizer is heat.

Dr. R. J. Cruise has returned from Europe.

Dr. Russell V. Cleveland has gone to New Zealand to practice.

Dr. W. E. Griswold, of Denver, Colo., visited Chicago in November.

Dr. Frank S. Buckley, lately of Chicago, is now located in Constantinople.

Col. John A. Robie, the treasurer of the Buffalo Dental Manufacturing Co. for so many years, is dead.

In carbolic acid poisoning why not use vinegar—it is easy to have on the case and is better than alcohol every time.

Enzymol is prepared as a digester of dead tissue, especially pus, neurotic tissue and as a surgical cleanser. It is said to not act on living tissue.

It is expected that the crop of ginseng (aralia quinquefolia) will be largely raised in the United States by the efforts of Mr. Harlan T. Kelsey, of Boston.

We regret to announce the death of Mme. Sauvez, at the age of fifty-three, the mother of Dr. E. Sauvez, the Secretary-General of the International Dental Congress.

When you have a pericementitis tie a strong cord or ligature around the root, producing traction, and then paint the gingival margin of the gum with two or three heavy coats of compound tincture of iodine. Then give the tooth a rest.

Dr. William Booth Pearsall, F. R. C. S., Dublin, Ireland, was the inventor of the system of railing off chairs, as shown at the Paris Congress. It appears that the Dublin meeting of the British Dental Association was the initial use of the railing that created so much favorable comment.

Dr. E. R. Squibb, of Brooklyn, New York, the eminent authority on materia medica and therapeutics, is dead. Dr. Squibb was foremost in his special field in this country and was the editor of *Ephemeris*, an occasional publication containing notes on all new drugs with all that was known by scientific men at the time of publication.

We have recently removed four molar shell crowns from the mouth of one person and three of the pulps were dead. All of these teeth had living pulps in them about three years ago, and nothing but the enamel had been removed prior to filling the shells. It seems that pulps will die under crowns even when coated with oxyphosphate zinc.

The first edition of Prof. Barrett's Oral Pathology and Practice was exhausted in an unexpectedly short time and not a copy is now to be obtained. The manuscript for a second edition is in the hands of the publishers, but the book cannot be ready until after the holidays probably. During the summer the author has entirely revised and rewritten it, adding new chapters and many new and original cuts which will make of it almost a new work. We have been shown some of the illustrations and they will be an illumination to the profession.

A portion of an afternoon was spent in the professional apartments of Dr. E. Sauvez, Secretary-General of the Paris Dental Congress. All of the latest and most approved methods of practice are like the alphabet to Dr. Sauvez and the several operating rooms are all equipped in the most satisfactory manner with everything of the latest pattern as to instruments and electrical appliances. Dr. Sauvez is a young man, probably 35, and enjoys a large and lucrative clientele. The work he did furthering the success of the Congress proves him an efficient and capable worker.

The eighth annual clinic of the Alumni Association of the Chicago College of Dental Surgery will be held at the College Building, cor. Wood and Harrison Streets, Wednesday, January 23, 1901. A large attendance is expected and a cordial invitation is extended members of the profession. The program of clinics will be announced later.

L. S. TENNEY, President,
100 State St., Chicago.

H. J. GOSLEE, Chairman Exec. Committee,
580 W. Madison St., Chicago.

KOWARSKO'S PASTE.

The paste which Kowarsko presented to the members of the International Dental Congress at Paris, composed of acetone and celluloid, may have a wide range of usefulness. I have used it on the sensitive neck of a tooth to cover it for a few weeks. If the tooth is dried with alcohol the liquid can be smeared over the neck of the tooth or the crown, and it will dry in about fifteen minutes. It sticks to a tooth very firmly. I am using the paste composed as follows:

Acetone	gr. 500.
Celluloid	gr. 155.

This makes a stiff paste; it must be well mixed. I am using it to hold loose teeth together. It will harden sufficiently in about one hour and a half. You better get some and try it.

EXECUTIVE COUNCIL OF THE INTERNATIONAL DENTAL FEDERATION.

In conformity with the vote taken at the last sitting of the Dental Congress August 14, 1900, the International Committee composed of Messrs. Aguilar, Cunningham, Forkey, Godon, Grevers, Harlan, Hesse, Pichler and Sauvez, held its first meeting Wednesday, August 15, at the Dental School of Paris.

All the members were present at this meeting except Hesse (who had given his proxy to MM. Godon and Sousey) and Grivers and Pichler. The meeting proceeded to elect officers as follows: Chas. Godon president, and Dr. E. Sauvez secretary-general, and the title of this committee was chosen as found at the heading of this article. Several matters of business were taken up which will be published later. The next meeting of the committee will be held in England in August, at the time of the holding of the annual meeting of the British Dental Association.

THE EIGHTH ANNUAL MEETING OF THE INSTITUTE OF DENTAL PEDAGOGICS, NASHVILLE, TENN., THURSDAY, DECEMBER 27, 1900.

Officers: President, Harry P. Carlton, San Francisco, Cal.; Vice President, George E. Hunt, Indianapolis, Ind.; Secretary and Treasurer, Hart J. Goslee, Chicago, Ill.; Executive Board, Henry W. Morgan, one year; David M. Cattell, two years; Walter E. Willmott, three years; Master of Exhibits, George H. Wilson, Cleveland, Ohio; Local Committee of Arrangements, Henry W. Morgan and J. P. Gray.

Thursday, December 27, 10:00 A. M. Organization. Executive business.

10:30 A. M. President's address. Discussion: Drs. W. F. Litch, J. Taft, H. B. Tileston, F. W. Weisse, W. C. Barrett.

12:00 M. "The Use of Flexible Rubber in Orthodontia and Other Technic Teaching," Dr. J. Q. Byram. Discussions: Drs. S. H. Guilford, C. S. Case, Walter H. Fundenberger, W. W. Evans, W. E. Grant.

2:00 P. M. "Teaching of Materia Medica and Therapeutics, How and How Much," Dr. A. H. Peck. Discussions: Drs. James Truman, John I. Hart, S. W. Foster, G. E. Hunt, J. D. Patterson.

5:00 P. M. Exhibit open.

8:15 P. M. "The Use of the Lantern in Teaching Dental Histology in Its Relations to Operative Dentistry," Dr. Fred Noyes. Discussions: Drs. J. M. Bromell, W. G. Foster, A. H. Thompson, H. T. Smith, Louis Leroy.

Friday, December 28., 9:00 A. M. Exhibit open.

10:00 A. M. "Presentation of the Technic of Crown and Bridge Work, Metal and Porcelain," Dr. Thos. E. Weeks. Discussions: Drs. Otto Arnold, Fred R. Sandusky, R. H. Nones, N. S. Hoff, H. R. Jewett.

1:00 P. M. "Class Room Method of Teaching Oral Surgery," Dr. G. V. I. Brown. Discussions: Drs. M. H. Cryer, T. J. Gilmer, Eugene Talbot, J. Y. Crawford, E. M. Kettig.

4:00 P. M. "A New Feature in Teaching Dental Anatomy and Operative Technics," Dr. A. E. Webster. Discussions: Drs. E. C. Kirk, G. V. Black, Wm. A. Montell, G. W. Dittmar, W. H. Whitslar.

Saturday, December 29, 9:00 A. M. Exhibit open.

10:00 A. M. "Class Room Method of Teaching Prosthetic Technic," Dr. Grant Molyneaux. Discussions: Drs. J. H. Kennerly, J. P. Gray, J. Bond Littig, T. M. Allen, A. O. Hunt.

11:30 A. M., Reports of Committees on Syllabi of Operative and Prosthetic Technics.

12:00 M. Election of officers and adjournment.

Exhibits should be shipped to the Maxwell House, care Dr. J. A. Dale, or Dr. George H. Wilson, Master of Exhibits, with college name on it, before the holiday rush.

All teachers are cordially urged to attend these meetings. Every school should be represented.

Fraternally,
Henry W. Morgan,
David M. Cattell,
Walter E. Willmott,
Executive Board.

BLACK TONGUE.

A new case of this rare malady is reported by J. Maraval, whose patient was a man aged forty-two years, and an inveterate smoker. For two months he had complained of pharyngeal dysæsthesia, discomfort in the movements of the tongue, sensation in swallowing as of a foreign body, and abundant salivation. Examination showed a brownish-yellow patch in the region of the circumvallate papillæ which could be peeled off in threads, and which under the microscope seemed to be made up of imbricated epithelium surrounding a central axis. The area of implantation was thoroughly curetted and a solution of zinc chloride 1:20 applied. He was seen six months later, with practically the same condition. He had abstained from tobacco for four months after the curetting, during which time he remained well, but on resuming smoking the deposit reappeared.—*Revue Hebdomadaire de Laryngologie*, No. 36, 1900.

SYPHILIS—PUSEY.

When a positive diagnosis of syphilis has been made, measures should be immediately taken to get the patient under the influence of mercury. If the disease is thoroughly and vigorously treated during the first six months the likelihood of further trouble is much lessened. It is important, therefore, to get the impress of mercury upon the disease as quickly as possible. My own plan is to put the patient upon inunctions at the outset. Beginning with forty grains of 50 per cent mercurial ointment daily, this is increased day by day until the teeth are touched. The dose is then slightly decreased. A dram daily is about the average maximum dose short of hydrargyrism. The patient is kept on inunctions for thirty days and then, if things are going well, he is usually put upon mercury by the mouth and this is followed as long as he is under treatment. This may be varied by courses of inunctions for two weeks at intervals of three or four months, or when special occasion arises. The dose of the drug by the mouth which the patient can tolerate has to be determined in each individual case. The mouth and the digestive tract being in good condition, an average dose is used at the beginning. Taking for example the bichloride, we may begin with one-twelfth grain, t. i. d., increasing one-twelfth grain every other day until the gums and teeth show slight tenderness. The symptoms of hydrargyrism will usually show themselves under one-sixth grain bichloride, t. i. d., if it is being absorbed. After the maximum is reached recede somewhat from that dose and hold the patient upon this smaller dose. The best evidence that the patient is getting the right amount of mercury is the behavior of the disease. If the cutaneous lesions are fading, the anemia improving, the sleeplessness, pains and depression disappearing, and the weight holding its own or improving, we may feel sure that the patient is getting enough mercury. And if the contrary is the case, during the active period of the first few months and when the general management of the case is being intelligently cared for, it is pretty sure that he is not getting enough mercury. In case emergencies arise—and they arise very rarely when the patient is assimilating mercury—my reliance is upon vigorous inunctions, and exceptionally upon deep injections of soluble salts of mercury. In a critical situation I do not hesitate to carry the drug to the point of pretty well marked hydrargyrism.

EXTRA-BUCCAL ALIMENTATION.

In the opinion of Ewald (Thirteenth International Congress of Medicine), extra-buccal alimentation is not sufficient to completely replace buccal alimentation in healthy persons. A failure in nutrition always results from it. In weakly people, in whom nutritive changes are diminished, extra-buccal alimentation increases the production of proteids and fat. This form of alimentation only succeeds when buccal alimentation has to be suspended for a time, or as an adjuvant system of diet. Nutritive injections given per rectum are preferable to those administered subcutaneously. Laborde, discussing this branch of the subject, said that albuminoids should never be given subcutaneously, as they always caused renal lesions when given in that fashion. Leube thought that oils and fats were the only forms of aliment which could be administered subcutaneously, and they might be thus given in daily doses of from 50 to 100 grams (1 oz. 334.16 grs. to 3 oz. 230.7 grs.). Oily substances were unsuitable for rectal alimentation. Albumen in the form of peptone (60 grams), 2 oz. 50.984 grs., 3 eggs + 46.2972 grs. of salt, in 10 oz. 254.7 grs. of milk, starchy food 15-20 grams to 100 grams of milk or water (231.524—308.648 grs. to 3 oz. 230.7 grs.), were suitable quantities for these rectal injections, which should be administered twice a day.

PATENTS RECENTLY GRANTED OF INTEREST TO DENTISTS.

659,886. Dental cervical clamp, Courtland G. Capwell, Boston, Mass.

659,747. Dental vulcanizer and celluloid press, Henry Hartwig and A. W. Feltmann, Chicago, Ill.

659,871. Dental articulator, Theodore G. Lewis, assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y.

659,684. Dental rubber dam holder, John A. W. Lundborg, San Francisco, Cal.

660,411. Dental plugger, Robert Blum, Corpus Christi, Texas.

660,434. Dentifrice bottle, Carl G. Hilgenberg and H. R. Loper, Baltimore, Md., assignors to Carr-Lowrey Glass Company, Baltimore, Md., and New York, N. Y.

660,194. Tooth-straightening appliance, Clarence D. Lukes, St. Louis, Mo.

660,172. Dental cuspidor, Herbert J. Tarr, Chicago, Ill.

660,319. Apparatus for making seamless tooth crowns, Joseph F. Twist, San Francisco, Cal.

660,677. Tooth brush, David J. Archer, Toronto, Canada.

660,943. Preparing dental remedies, Hermann Bauermeister, Brunswick, Germany.

Copies of the above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

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